U.S. Department
of Transportation

**Federal Aviation
Administration**

Federal Aviation Regulations

Part 31
Airworthiness Standards: Manned Free Balloons

This edition replaces the existing loose-leaf Part 31 and its changes.

This FAA publication of the basic Part 31, effective July 1, 1964, incorporates Amendments 31-1 through 31-5 with preambles.

Published
September 1993

PARTICIPATION IN NOTICE OF PROPOSED RULEMAKING PROCEDURES

Your purchase of Part 3 1 indicates that you have a need for the regulatory material that it contains.

If you want to participate in the rulemaking process when a change is proposed, please complete the form below and you will be placed on the Notice of Proposed Rulemaking mailing list. You will then receive all further Notices of Proposed Rulemaking without charge.

Upon receipt of the completed form, an individual "Record Ident" will be created from the information you submit, and your name will be placed on a computerized mailing list. The "Record Ident" is the key that controls all changes to your record and is reflected in the mailing label used to send you Notices of Rulemaking, therefore, it is important that you save one of the mailing labels and include it in any correspondence you initiate concerning this NPRM service as it will ensure positive identification and prompt response.

PART 31

NPRM ORDER FORM

U.S. Department of Transportation
Office of the Secretary
Distribution Service Branch, M-483.1
Washington, DC 20590

Please place the following on the Part 31 Notice of Rulemaking mailing list:

Title or Name:

Company:

Address _____
(Street)

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So far as airworthiness is concerned this design would appear to meet this requirement since it in effect provides 100 percent deflation.

As originally proposed, the section on drag ropes required a suitable drag rope for all balloons. It has been pointed out, however, that in captive gas type balloons vertical control is accomplished by releasing contained gas or removing ballast. Since the drag rope serves as recoverable ballast and as a slow-down device, it is therefore, usually installed in this type balloon. In hot air type balloons, however, vertical control is accomplished by adding or reducing the heat. Therefore, since ballast is not required for vertical control in this latter type of balloon, the provision has been amended accordingly.

Industry comment recommended that the minimum load required to operate the rip cord be changed to 20 pounds or eliminated altogether. This comment was based on the fact that the light breakable cord used to secure the rip cord to the envelope automatically provides the minimum load and therefore only the maximum force of 75 pounds need be prescribed. The Agency does not concur in this view. The provision is considered to be essential to preclude inadvertent operation. In this regard, other comments suggested that the section be amended to require that the rip cord be attached at only one point instead of two. This provision requiring attachments at two points was intended to preclude entanglement. However, further investigation indicates that this can be accomplished by one attachment point. Therefore, the provision has been amended by eliminating the number of attachment points and specifying only that the design be such as to preclude entanglement.

Information that became available to the Agency after the notice of proposed rulemaking was issued indicates that there may be a means provided for carrying passengers other than in a trapeze or basket. The section dealing with the passenger-carrying compartment has therefore been amended to include other means provided for carrying occupants.

One comment suggested that certain design details be included in the section dealing with functional and installation requirements. Design detail requirements have not been included in the Part as they relate solely to the fabrication of hot-air type balloons and are covered by the provisions of § 31.35.

The identification and marking provisions contained in the notice of proposed rulemaking have been eliminated as they are identical to the requirements of Part 45 ' 'Identification and Registration Marking' ' [New] of the Federal Aviation Regulations which applies to all aircraft. In this connection several industry comments contended that the identification marking may not be practical for certain types of envelope material and recommended as an alternative that a suitable banner be affixed to the balloon. The Agency does not regard identification by means of a banner to be a practicable means of identifying the balloons. Banners tied to the basket or trapeze or other means of carrying passengers could make the identification extremely difficult or impossible depending on the direction or velocity of the wind. Banners tied to the envelope could also present a problem in that it might be difficult to accurately take into account expansion or contraction during flight. In any event, the October, 1963, issue of the bulletin published by the Wing Foot Lighter-Than-Air Society, Akron, Ohio, gives specific pictorial examples in which identification markings have been permanently affixed to the envelope without apparent difficulty. On this basis, therefore, the Agency sees no need to amend the section.

Several balloon societies and manufacturers contend that the painting or dying of certain envelope materials would create control problems due to the non-uniform generation of superheat and might have an adverse affect on the physical properties of certain envelope materials. The intent of this section is to assure that the balloon will be conspicuous during its operation. The conventional silver color balloon would be conspicuous under certain conditions but not under others. In view of the above described comments therefore, the Agency has amended the section to allow the use of contrasting colored banners for conspicuity purposes if they are large enough and are appropriately located.

Comments received on the notice of proposed rulemaking suggested changes in the following areas which. could not be made (as explained above) because they were not within the purview of the notice. These changes will be submitted by the Agency for comment in an appropriate notice of proposed rulemaking:

1. Factor of safety.

2. Fuel cell testing.

3. Gas heater controls.

4. Gas heater tests.

5. Controlled release of hot air.

6. Means to indicate maximum envelope skin temperature.

So far as airworthiness is concerned this design would appear to meet this requirement since it in effect provides 100 percent deflation.

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Proposal 2–2. *No* unfavorable comments were received on the proposal to amend § 23.23. Accordingly, the proposal is adopted without substantive change.

Proposal 2–3. *No* unfavorable comments were received on the proposal to amend § 23.141. Accordingly, the proposal is adopted without substantive change.

Proposal 2–4. No unfavorable comments were received on the proposal to amend § 23.143(b). Accordingly, the proposal is adopted without substantive change.

Proposal 2–5. *No* unfavorable comments were received on the proposal to amend § 23.145. Accordingly, the proposal is adopted without substantive change.

Proposal 2–6. The proposed change to § 23.149(b) concerning the language "without exceptional piloting skill, alertness, or strength" is related to a proposed amendment to § 23.149 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 23.149(b) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–6 will be considered at that time.

Proposal 2–7. Although no unfavorable comment was received on the proposal to amend § 23.175(c), the FAA believes that clarification is necessary. The term "or thrust" has been added to the end of the language "maximum cruising power" in proposed § 23.175(c)(3). Proposed § 23.175(c)(4) was intended to clarify the requirement concerning trim speed, but the FAA believes the conflict in language with a similar provision in § 23.175(b)(2)(iii) may cause confusion. Therefore, proposed § 23.175(c)(4) is withdrawn.

Proposal 2–8. The proposed change to § 23.253(b) is related to a proposed amendment to § 23.253(b)(3) that is contained in Airworthiness Review Program, Notice No. 8: Aircraft, Engine, and Propeller Airworthiness, and Procedural Proposals (Notice 75–31; 40 FR 29410; July 11, 1975). The proposed amendment to § 23.253(b) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–31. Comments submitted for Proposal 2–8 will be considered at that time.

Proposal 2–9. No unfavorable comments were received on the proposal to amend § 23.397. Accordingly, the proposal is adopted without substantive change.

Proposal 2–10. No unfavorable comments were received on the proposal to add a new § 23.479(d). Accordingly, the proposal is adopted without substantive change.

Proposal 2–11. One commentator objected to the proposed use of the language "materials used for parts, the failure of which could adversely affect safety" in place of the language "materials used in the structure" in §§ 23.603(a) and 25.603. The FAA does not agree with the commentator's suggestion that all parts of the airplane should, unless specifically excluded, be considered structure. The FAA believes that consideration of the suitability and durability of materials used should be broadened to include parts not normally considered airplane structure.

Proposal 2–12. No unfavorable comments were received on the proposal to amend § 23.607. Accordingly, the proposal is adopted without substantive change.

Proposal 2–13. A commentator questioned whether proposed § 23.675 would require that stops provided to limit the range of motion of an aerodynamic surface be located only on the aerodynamic surface or whether the stop could be located adjacent to the surface. Section 23.675, as proposed and as adopted herein, without change, requires that stops positively limit the range of motion of moveable aerodynamic surfaces. This can be accomplished by locating the stop on structure adjacent to the surface.

Proposal 2–14. No unfavorable comments were received on the proposal to amend § 23.685(a). Accordingly, the proposal is adopted without substantive change. See proposal 2–109.

Proposal 2–15. No unfavorable comments were received on the proposal to add a new § 23.733(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–16. No unfavorable comments were received on the proposed new § 23.787(f). However, one commentator pointed out that the word "contract" in the proposal as printed in the ***Federal Register*** should be "contact." The proposal has been corrected to eliminate the printing error. The proposal has

does not agree. The intent of the proposals was to make the inspection and test requirements in § 21.33(a) compatible for aircraft, aircraft engines, and propellers. The provision applies to the item presented for type certification tests irrespective of whether or not the item is considered a prototype by the applicant for the type certificate. The proposal is therefore, adopted without substantive change.

Proposal 2–2. *No* unfavorable comments were received on the proposal to amend § 23.23. Accordingly, the proposal is adopted without substantive change.

Proposal 2–3. *No* unfavorable comments were received on the proposal to amend § 23.141. Accordingly, the proposal is adopted without substantive change.

Proposal 2–4. No unfavorable comments were received on the proposal to amend § 23.143(b). Accordingly, the proposal is adopted without substantive change.

Proposal 2–5. *No* unfavorable comments were received on the proposal to amend § 23.145. Accordingly, the proposal is adopted without substantive change.

Proposal 2–6. The proposed change to § 23.149(b) concerning the language "without exceptional piloting skill, alertness, or strength" is related to a proposed amendment to § 23.149 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 23.149(b) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–6 will be considered at that time.

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Proposal 2–2. *No* unfavorable comments were received on the proposal to amend § 23.23. Accordingly, the proposal is adopted without substantive change.

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Proposal 2–4. No unfavorable comments were received on the proposal to amend § 23.143(b). Accordingly, the proposal is adopted without substantive change.

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Proposal 2–6. The proposed change to § 23.149(b) concerning the language "without exceptional piloting skill, alertness, or strength" is related to a proposed amendment to § 23.149 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 23.149(b) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–6 will be considered at that time.

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Proposal 2–5. *No* unfavorable comments were received on the proposal to amend § 23.145. Accordingly, the proposal is adopted without substantive change.

Proposal 2–6. The proposed change to § 23.149(b) concerning the language "without exceptional piloting skill, alertness, or strength" is related to a proposed amendment to § 23.149 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 23.149(b) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–6 will be considered at that time.

Proposal 2–7. Although no unfavorable comment was received on the proposal to amend § 23.175(c), the FAA believes that clarification is necessary. The term "or thrust" has been added to the end of the language "maximum cruising power" in proposed § 23.175(c)(3). Proposed § 23.175(c)(4) was intended to clarify the requirement concerning trim speed, but the FAA believes the conflict in language with a similar provision in § 23.175(b)(2)(iii) may cause confusion. Therefore, proposed § 23.175(c)(4) is withdrawn.

Proposal 2–8. The proposed change to § 23.253(b) is related to a proposed amendment to § 23.253(b)(3) that is contained in Airworthiness Review Program, Notice No. 8: Aircraft, Engine, and Propeller Airworthiness, and Procedural Proposals (Notice 75–31; 40 FR 29410; July 11, 1975). The proposed amendment to § 23.253(b) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–31. Comments submitted for Proposal 2–8 will be considered at that time.

Proposal 2–9. No unfavorable comments were received on the proposal to amend § 23.397. Accordingly, the proposal is adopted without substantive change.

Proposal 2–10. No unfavorable comments were received on the proposal to add a new § 23.479(d). Accordingly, the proposal is adopted without substantive change.

Proposal 2–11. One commentator objected to the proposed use of the language "materials used for parts, the failure of which could adversely affect safety" in place of the language "materials used in the structure" in §§ 23.603(a) and 25.603. The FAA does not agree with the commentator's suggestion that all parts of the airplane should, unless specifically excluded, be considered structure. The FAA believes that consideration of the suitability and durability of materials used should be broadened to include parts not normally considered airplane structure.

Proposal 2–12. No unfavorable comments were received on the proposal to amend § 23.607. Accordingly, the proposal is adopted without substantive change.

Proposal 2–13. A commentator questioned whether proposed § 23.675 would require that stops provided to limit the range of motion of an aerodynamic surface be located only on the aerodynamic surface or whether the stop could be located adjacent to the surface. Section 23.675, as proposed and as adopted herein, without change, requires that stops positively limit the range of motion of moveable aerodynamic surfaces. This can be accomplished by locating the stop on structure adjacent to the surface.

Proposal 2–14. No unfavorable comments were received on the proposal to amend § 23.685(a). Accordingly, the proposal is adopted without substantive change. See proposal 2–109.

Proposal 2–15. No unfavorable comments were received on the proposal to add a new § 23.733(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–16. No unfavorable comments were received on the proposed new § 23.787(f). However, one commentator pointed out that the word "contract" in the proposal as printed in the ***Federal Register*** should be "contact." The proposal has been corrected to eliminate the printing error. The proposal has

6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to §23.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related Proposal in Notice 75–25. Comments submitted for Proposal 2–45 will be considered at that time.

Proposal 2-46. The proposed change to § 23.1587(a)(2) is related to proposed amendments to § 23.1587 that were contained in Airworthiness Review Program, Notice 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 23.1587 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2–46 will be considered at that time.

Proposal 2-47. One commentator suggested that considering the proposed deletion of §§ 25.45 through 25.75, current § 25.1461 (e) will need to be amended to replace the reference to § 25.69. The FAA agrees, and § 25.1461 (e)(1) is amended by striking the reference to § 25.69 and inserting in place thereof a reference to § 25.123(a). In addition, the FAA has found that § 25.201(c)(1) refers to § 25.49(c)(2)(i) that would also be deleted. Therefore, § 25.201(c)(1) as amended strikes the phrase "§ 25.49(c)(2)(i) for reciprocating engine powered airplanes, or in" and the phrase ' 'for turbine engine powered airplanes' '.

Proposal 2-48. No unfavorable comments were received on the proposed change to strike the words ' 'turbine powered' ' from § 25.101(a). Accordingly, proposed § 25.101 (a) is adopted without substantive change.

No unfavorable comments were received on proposed § 25.101(b) and it is adopted as proposed except that it is clarified to indicate that the 80% relative humidity for reciprocating engines is based on standard atmospheric temperature (the vapor pressure values in the table in proposed § 25.101(b)(2) correspond to 80% relative humidity with a standard atmosphere).

Proposal 2-49. Based on comments received on the proposal to amend § 25.105 and on the related proposals to §§ 25.125, 25.241 and 25.1533(c), and upon further review by the FAA, Proposals 2–49, 2–5 1, 2–52 and the portion of 2–93 dealing with the new operating limitation requirements for transport category airplanes intended to be used in operations on unpaved runways are withdrawn.

Proposal 2-50. No unfavorable comments were received on the proposal to amend § 25.107. Accordingly, the proposal is adopted without substantive change.

Proposal 2-51. For comments related to the withdrawal of the proposed amendment of § 25.125, see Proposal 2–49.

Proposal 2-52. For comments related to the withdrawal of the proposal to add a new § 25.241, see Proposal 2–49.

Proposal 2-53. No unfavorable comments were received on the proposal to amend § 25.397. Accordingly, the proposal is adopted without substantive change.

Proposal 2-54. For comments related to the proposed amendment of the lead-in of § 25.603, see Proposal 2–11.

Proposal 2-55. No unfavorable comments were received on the proposal to amend § 25.675. Accordingly, the proposal is adopted without substantive change. Also see Proposal 2–13.

Proposal 2-56. No unfavorable comments were received on the proposal to amend § 25.685(a). Accordingly, the proposal is adopted without substantive change. See Proposal 2–109.

Proposal 2-57. No unfavorable comments were received on the proposal to add a new § 25.733(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-58. One commentator questioned whether the proposed § 25.775(e) would require that there be at least two windshield panels in the windshield for each pilot. The intent of the proposal, however, is to provide at least one windshield panel through which at least one pilot could see if vision was lost through another panel.

Proposal 2-59. Proposed § 25.783(g) concerning integral stairs installed in passenger entry doors that qualify as passenger exits is related to a proposed amendment to § 25.783 that is contained in Airworthiness Review Program, Notice No. 8: Aircraft, Engine, and Propeller Airworthiness, and Procedural Proposals (Notice 75–31; 40 FR 29410; July 11, 1975). The proposed amendment to § 25.783(g) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–3 1. Comments submitted for Proposal 2–59 will be considered. at that time.

6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to §23.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related Proposal in Notice 75–25. Comments submitted for Proposal 2–45 will be considered at that time.

Proposal 2-46. The proposed change to § 23.1587(a)(2) is related to proposed amendments to § 23.1587 that were contained in Airworthiness Review Program, Notice 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 23.1587 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2–46 will be considered at that time.

Proposal 2-47. One commentator suggested that considering the proposed deletion of §§ 25.45 through 25.75, current § 25.1461 (e) will need to be amended to replace the reference to § 25.69. The FAA agrees, and § 25.1461 (e)(1) is amended by striking the reference to § 25.69 and inserting in place thereof a reference to § 25.123(a). In addition, the FAA has found that § 25.201(c)(1) refers to § 25.49(c)(2)(i) that would also be deleted. Therefore, § 25.201(c)(1) as amended strikes the phrase "§ 25.49(c)(2)(i) for reciprocating engine powered airplanes, or in" and the phrase ' 'for turbine engine powered airplanes' '.

Proposal 2-48. No unfavorable comments were received on the proposed change to strike the words ' 'turbine powered' ' from § 25.101(a). Accordingly, proposed § 25.101 (a) is adopted without substantive change.

No unfavorable comments were received on proposed § 25.101(b) and it is adopted as proposed except that it is clarified to indicate that the 80% relative humidity for reciprocating engines is based on standard atmospheric temperature (the vapor pressure values in the table in proposed § 25.101(b)(2) correspond to 80% relative humidity with a standard atmosphere).

Proposal 2-49. Based on comments received on the proposal to amend § 25.105 and on the related proposals to §§ 25.125, 25.241 and 25.1533(c), and upon further review by the FAA, Proposals 2–49, 2–5 1, 2–52 and the portion of 2–93 dealing with the new operating limitation requirements for transport category airplanes intended to be used in operations on unpaved runways are withdrawn.

Proposal 2-50. No unfavorable comments were received on the proposal to amend § 25.107. Accordingly, the proposal is adopted without substantive change.

Proposal 2-51. For comments related to the withdrawal of the proposed amendment of § 25.125, see Proposal 2–49.

Proposal 2-52. For comments related to the withdrawal of the proposal to add a new § 25.241, see Proposal 2–49.

Proposal 2-53. No unfavorable comments were received on the proposal to amend § 25.397. Accordingly, the proposal is adopted without substantive change.

Proposal 2-54. For comments related to the proposed amendment of the lead-in of § 25.603, see Proposal 2–11.

Proposal 2-55. No unfavorable comments were received on the proposal to amend § 25.675. Accordingly, the proposal is adopted without substantive change. Also see Proposal 2–13.

Proposal 2-56. No unfavorable comments were received on the proposal to amend § 25.685(a). Accordingly, the proposal is adopted without substantive change. See Proposal 2–109.

Proposal 2-57. No unfavorable comments were received on the proposal to add a new § 25.733(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-58. One commentator questioned whether the proposed § 25.775(e) would require that there be at least two windshield panels in the windshield for each pilot. The intent of the proposal, however, is to provide at least one windshield panel through which at least one pilot could see if vision was lost through another panel.

Proposal 2-59. Proposed § 25.783(g) concerning integral stairs installed in passenger entry doors that qualify as passenger exits is related to a proposed amendment to § 25.783 that is contained in Airworthiness Review Program, Notice No. 8: Aircraft, Engine, and Propeller Airworthiness, and Procedural Proposals (Notice 75–31; 40 FR 29410; July 11, 1975). The proposed amendment to § 25.783(g) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–3 1. Comments submitted for Proposal 2–59 will be considered. at that time.

6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to §23.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related Proposal in Notice 75–25. Comments submitted for Proposal 2–45 will be considered at that time.

Proposal 2-46. The proposed change to § 23.1587(a)(2) is related to proposed amendments to § 23.1587 that were contained in Airworthiness Review Program, Notice 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 23.1587 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2–46 will be considered at that time.

Proposal 2-47. One commentator suggested that considering the proposed deletion of §§ 25.45 through 25.75, current § 25.1461 (e) will need to be amended to replace the reference to § 25.69. The FAA agrees, and § 25.1461 (e)(1) is amended by striking the reference to § 25.69 and inserting in place thereof a reference to § 25.123(a). In addition, the FAA has found that § 25.201(c)(1) refers to § 25.49(c)(2)(i) that would also be deleted. Therefore, § 25.201(c)(1) as amended strikes the phrase "§ 25.49(c)(2)(i) for reciprocating engine powered airplanes, or in" and the phrase ' 'for turbine engine powered airplanes' '.

Proposal 2-48. No unfavorable comments were received on the proposed change to strike the words ' 'turbine powered' ' from § 25.101(a). Accordingly, proposed § 25.101 (a) is adopted without substantive change.

No unfavorable comments were received on proposed § 25.101(b) and it is adopted as proposed except that it is clarified to indicate that the 80% relative humidity for reciprocating engines is based on standard atmospheric temperature (the vapor pressure values in the table in proposed § 25.101(b)(2) correspond to 80% relative humidity with a standard atmosphere).

Proposal 2-49. Based on comments received on the proposal to amend § 25.105 and on the related proposals to §§ 25.125, 25.241 and 25.1533(c), and upon further review by the FAA, Proposals 2–49, 2–5 1, 2–52 and the portion of 2–93 dealing with the new operating limitation requirements for transport category airplanes intended to be used in operations on unpaved runways are withdrawn.

Proposal 2-50. No unfavorable comments were received on the proposal to amend § 25.107. Accordingly, the proposal is adopted without substantive change.

Proposal 2-51. For comments related to the withdrawal of the proposed amendment of § 25.125, see Proposal 2–49.

Proposal 2-52. For comments related to the withdrawal of the proposal to add a new § 25.241, see Proposal 2–49.

Proposal 2-53. No unfavorable comments were received on the proposal to amend § 25.397. Accordingly, the proposal is adopted without substantive change.

Proposal 2-54. For comments related to the proposed amendment of the lead-in of § 25.603, see Proposal 2–11.

Proposal 2-55. No unfavorable comments were received on the proposal to amend § 25.675. Accordingly, the proposal is adopted without substantive change. Also see Proposal 2–13.

Proposal 2-56. No unfavorable comments were received on the proposal to amend § 25.685(a). Accordingly, the proposal is adopted without substantive change. See Proposal 2–109.

Proposal 2-57. No unfavorable comments were received on the proposal to add a new § 25.733(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-58. One commentator questioned whether the proposed § 25.775(e) would require that there be at least two windshield panels in the windshield for each pilot. The intent of the proposal, however, is to provide at least one windshield panel through which at least one pilot could see if vision was lost through another panel.

Proposal 2-59. Proposed § 25.783(g) concerning integral stairs installed in passenger entry doors that qualify as passenger exits is related to a proposed amendment to § 25.783 that is contained in Airworthiness Review Program, Notice No. 8: Aircraft, Engine, and Propeller Airworthiness, and Procedural Proposals (Notice 75–31; 40 FR 29410; July 11, 1975). The proposed amendment to § 25.783(g) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–3 1. Comments submitted for Proposal 2–59 will be considered. at that time.

Proposal 2–77. No unfavorable comments were received on the proposal to add a new § 25.1167(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–78. No unfavorable comments were received on the proposal to amend § 25.1197(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–79. One commentator suggested that proposed §25.1303(a)(2) be revised to clarify the method of clock indication which would be permitted under the regulation. The FAA agrees that the intent of the proposal was only to recognize the development of accurate digital clocks and that the minimum information presented should be the same. Proposed §§ 25.1303(a)(2) and 29.1303(d) as adopted are revised to make this clear.

Proposal 2–80. Several commentators suggested that the proposed change to § 25.1305 be revised to except anti-detonant injection (ADI) systems from the powerplant instrument proposal for fluid augmentation systems. The commentators expressed the opinion that the proposal for §25.1143(d) concerning automatic controls for fluid injection systems (other than fuel) eliminated the need for a power-plant instrument for the ADI system. The FAA believes that the flight crew should be able to monitor the proper functioning of any fluid system that is used for thrust or power augmentation and the section as adopted is applicable to ADI systems. However, the section has been clarified to ensure application only to fluid systems that are used for thrust or power augmentation.

Proposal 2–81. No unfavorable comments were received on the proposal to amend § 25.1309. Accordingly, the proposal is adopted without substantive change.

Proposal 2–82. One commentator questioned the proposed color standardization of warning, caution, and advisory lights in new § 25.1322. The commentator stated "arbitrary standards for specific light colors cannot always be stated" because of the design objective to minimize red lights that require immediate crew action and of the need to consider past experience, test, crew acceptance, and the specific application. The FAA agrees that considerations other than the need for standardization of light colors may dominate in special circumstances, and the section as adopted provides for approval by the Administrator of light colors that are different than the standard. As stated by the commentator and in the section as adopted, a design objective is to have red warning lights only if a hazard is to be indicated which may require immediate corrective action.

One commentator noted that the language "warning light" is used in other sections of the regulations, such as § 25.812(e)(2), and a hazard which may require immediate corrective action will not be indicated. The FAA does not agree; the light noted in § 25.812(e)(2) should be red in future designs unless otherwise approved by the Administrator. The FAA believes that in other sections, if the language "warning light" is used, it is consistent with proposed new § 25.1322. However, if the language "warning light" is determined to be not generally applicable, later rulemaking action can be instituted.

One commentator suggested a clarification of the lead-in of the proposal to limit its applicability to lights installed in the cockpit as indicated in the explanation to the proposal. The FAA agrees, and the lead-ins of §§ 23.1322, 25.1322, 27.1322, and 29.1322 have been clarified.

Also see Proposal 2–34 for a discussion of the withdrawal of the blue light proposal.

Proposal 2–83. For comments related to the deferral of proposed §25.1325(g), see Proposal 2-35.

Proposal 2–84. The proposed change to § 25.1329 concerning the redesignation of §25.1329 as § 25.13 11 and the addition of provisions for automatic flight control systems is related to a proposed amendment to § 25.1329 that is contained in Airworthiness Review Program, Notice No. 5: Equipment and Systems Proposals (Notice 75–23; 40 FR 23048, May 27, 1975). The proposed amendment to § 25.1329 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–23. Comments submitted for Proposal 2–84 will be considered at that time.

Proposal 2–85. Proposed § 25.1331 (a)(2) concerning instruments using a power supply is related to proposed amendments to §§ 25.133 1 and 25.1333 that are contained in Airworthiness Review Program, Notice No. 5: Equipment and Systems Proposals (Notice 75–23; 40 FR 23048; May 27, 1975). The proposed amendment to §25.1331(a)(2) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposals in Notice 75–23. Comments submitted for Proposal 2–85 will be considered at that time.

Proposal 2–86. Proposed §25.1337(a) concerning auxiliary power unit instrument lines is related to a proposed amendment to § 25.1337(a) that is contained in Airworthiness Review Program, Notice No. 3: Powerplant Proposals (Notice 75–19; 40 FR 21866; May 19, 1975). The proposed amendment

Proposal 2–77. No unfavorable comments were received on the proposal to add a new § 25.1167(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–78. No unfavorable comments were received on the proposal to amend § 25.1197(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–79. One commentator suggested that proposed §25.1303(a)(2) be revised to clarify the method of clock indication which would be permitted under the regulation. The FAA agrees that the intent of the proposal was only to recognize the development of accurate digital clocks and that the minimum information presented should be the same. Proposed §§ 25.1303(a)(2) and 29.1303(d) as adopted are revised to make this clear.

Proposal 2–80. Several commentators suggested that the proposed change to § 25.1305 be revised to except anti-detonant injection (ADI) systems from the powerplant instrument proposal for fluid augmentation systems. The commentators expressed the opinion that the proposal for §25.1143(d) concerning automatic controls for fluid injection systems (other than fuel) eliminated the need for a power-plant instrument for the ADI system. The FAA believes that the flight crew should be able to monitor the proper functioning of any fluid system that is used for thrust or power augmentation and the section as adopted is applicable to ADI systems. However, the section has been clarified to ensure application only to fluid systems that are used for thrust or power augmentation.

Proposal 2–81. No unfavorable comments were received on the proposal to amend § 25.1309. Accordingly, the proposal is adopted without substantive change.

Proposal 2–82. One commentator questioned the proposed color standardization of warning, caution, and advisory lights in new § 25.1322. The commentator stated "arbitrary standards for specific light colors cannot always be stated" because of the design objective to minimize red lights that require immediate crew action and of the need to consider past experience, test, crew acceptance, and the specific application. The FAA agrees that considerations other than the need for standardization of light colors may dominate in special circumstances, and the section as adopted provides for approval by the Administrator of light colors that are different than the standard. As stated by the commentator and in the section as adopted, a design objective is to have red warning lights only if a hazard is to be indicated which may require immediate corrective action.

One commentator noted that the language "warning light" is used in other sections of the regulations, such as § 25.812(e)(2), and a hazard which may require immediate corrective action will not be indicated. The FAA does not agree; the light noted in § 25.812(e)(2) should be red in future designs unless otherwise approved by the Administrator. The FAA believes that in other sections, if the language "warning light" is used, it is consistent with proposed new § 25.1322. However, if the language "warning light" is determined to be not generally applicable, later rulemaking action can be instituted.

One commentator suggested a clarification of the lead-in of the proposal to limit its applicability to lights installed in the cockpit as indicated in the explanation to the proposal. The FAA agrees, and the lead-ins of §§ 23.1322, 25.1322, 27.1322, and 29.1322 have been clarified.

Also see Proposal 2–34 for a discussion of the withdrawal of the blue light proposal.

Proposal 2–83. For comments related to the deferral of proposed §25.1325(g), see Proposal 2-35.

Proposal 2–84. The proposed change to § 25.1329 concerning the redesignation of §25.1329 as § 25.1311 and the addition of provisions for automatic flight control systems is related to a proposed amendment to § 25.1329 that is contained in Airworthiness Review Program, Notice No. 5: Equipment and Systems Proposals (Notice 75–23; 40 FR 23048, May 27, 1975). The proposed amendment to § 25.1329 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–23. Comments submitted for Proposal 2–84 will be considered at that time.

Proposal 2–85. Proposed § 25.1331(a)(2) concerning instruments using a power supply is related to proposed amendments to §§ 25.1331 and 25.1333 that are contained in Airworthiness Review Program, Notice No. 5: Equipment and Systems Proposals (Notice 75–23; 40 FR 23048; May 27, 1975). The proposed amendment to §25.1331(a)(2) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposals in Notice 75–23. Comments submitted for Proposal 2–85 will be considered at that time.

Proposal 2–86. Proposed §25.1337(a) concerning auxiliary power unit instrument lines is related to a proposed amendment to § 25.1337(a) that is contained in Airworthiness Review Program, Notice No. 3: Powerplant Proposals (Notice 75–19; 40 FR 21866; May 19, 1975). The proposed amendment

no interest in the usable fuel tank capacity. The determination of oil level in oil tanks is usually accomplished with the dipstick. Accordingly, the proposal is adopted without substantive change.

Proposal 2–96. The proposed change to § 25.1581 concerning the Airplane Flight Manual is related to proposed amendment § 25.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 25.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–96 will be considered at that time.

Proposal 2–97. No unfavorable comments were received on the proposal to amend § 25.1583. Accordingly, the proposal is adopted without substantive change.

Proposal 2–98. The proposed change to § 25.1587 concerning performance information is related to a proposed amendment to § 25.1587 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposal amendment to § 25.1587 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–98 will be considered at that time.

Proposal 2–99. Two commentators questioned the applicability of proposed § 27.25(c) concerning a total weight that was greater than the maximum weight established under § 27.25(a) and noted that a clarification of the applicable flight requirements was needed. The FAA agrees that proposed § 27.25(c) should be clarified. Proposed §§ 27.25(c) and 29.25(c) are intended to provide only a total weight standard for approving the rotorcraft structure for rotorcraft that will be operated under Part 133. Proposed §§ 27.25(c) and 29.25(c) as adopted have been revised to clarify this intent.

Proposal 2–100. Proposed § 27.65(a)(2)(i) concerning climb gradients for rotorcraft other than helicopters is related to a proposed new § 27.1587(b)(3) that is contained in Airworthiness Review Program, Notice No. 2: Miscellaneous Proposals (Notice 75–10; 40 FR 10802; March 7, 1975). The proposed amendment to § 27.1587 contained in Notice 75–10 is being deferred; see Proposal 2–140. Therefore, the proposed amendment to § 27.65 contained in Notice 75–10 is also deferred until final rulemaking action is taken with respect to the related proposal for § 27.1587. Comments submitted for Proposal 2–100 will be considered at that time.

Proposal 2–101. No unfavorable comments were received on the proposal to amend § 27.141. Accordingly, the proposal is adopted without substantive change.

Proposal 2–102. No unfavorable comments were received on the proposal to amend § 27.173(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–103. No unfavorable comments were received on the proposal to amend § 27.175(d)(2)(iv). Accordingly, the proposal is adopted without substantive change.

Proposal 2–104. No unfavorable comments were received on the proposal to amend § 27.321(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–105. No unfavorable comments were received on the proposal to amend § 27.339. Accordingly, the proposal is adopted without substantive change.

Proposal 2–106. Two commentators suggested that the limit pilot torque for rotorcraft twist controls in proposed §§ 27.397(b)(2) and 29.397(b)(2) should be 80 times the radius (R) in inches instead of 133 inch-pounds, as proposed. The FAA agrees that the pilot torque load requirements should be a function of the radius (R). Also the FAA does not expect the radius (R) of any twist control installed on any rotorcraft type certificated in the future to be greater than 133/80 inches. Therefore, the proposals as adopted revise the limit pilot torque load to 80R inch-pounds.

Proposal 2–107. No unfavorable comments were received on the proposal to add a new § 27.563. Accordingly, the proposal is adopted without substantive change.

Proposal 2–108. No unfavorable comments were received on the proposal to amend § 27.603. Accordingly, the proposal is adopted without substantive change.

Proposal 2–109. One commentator disagreed with proposed §§ 27.685(a) and 29.685(a) that would require the consideration of the effects of the freezing of moisture on control systems since §§ 27.685(a) and 29.685(a) currently require that control systems be designed to prevent jamming. While the explanation for this proposal indicated that the freezing of moisture was a common cause of control jamming, the

no interest in the usable fuel tank capacity. The determination of oil level in oil tanks is usually accomplished with the dipstick. Accordingly, the proposal is adopted without substantive change.

Proposal 2–96. The proposed change to § 25.1581 concerning the Airplane Flight Manual is related to proposed amendment § 25.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 25.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–96 will be considered at that time.

Proposal 2–97. No unfavorable comments were received on the proposal to amend § 25.1583. Accordingly, the proposal is adopted without substantive change.

Proposal 2–98. The proposed change to § 25.1587 concerning performance information is related to a proposed amendment to § 25.1587 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposal amendment to § 25.1587 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–98 will be considered at that time.

Proposal 2–99. Two commentators questioned the applicability of proposed § 27.25(c) concerning a total weight that was greater than the maximum weight established under § 27.25(a) and noted that a clarification of the applicable flight requirements was needed. The FAA agrees that proposed § 27.25(c) should be clarified. Proposed §§ 27.25(c) and 29.25(c) are intended to provide only a total weight standard for approving the rotorcraft structure for rotorcraft that will be operated under Part 133. Proposed §§ 27.25(c) and 29.25(c) as adopted have been revised to clarify this intent.

Proposal 2–100. Proposed § 27.65(a)(2)(i) concerning climb gradients for rotorcraft other than helicopters is related to a proposed new § 27.1587(b)(3) that is contained in Airworthiness Review Program, Notice No. 2: Miscellaneous Proposals (Notice 75–10; 40 FR 10802; March 7, 1975). The proposed amendment to § 27.1587 contained in Notice 75–10 is being deferred; see Proposal 2–140. Therefore, the proposed amendment to § 27.65 contained in Notice 75–10 is also deferred until final rulemaking action is taken with respect to the related proposal for § 27.1587. Comments submitted for Proposal 2–100 will be considered at that time.

Proposal 2–101. No unfavorable comments were received on the proposal to amend § 27.141. Accordingly, the proposal is adopted without substantive change.

Proposal 2–102. No unfavorable comments were received on the proposal to amend § 27.173(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–103. No unfavorable comments were received on the proposal to amend § 27.175(d)(2)(iv). Accordingly, the proposal is adopted without substantive change.

Proposal 2–104. No unfavorable comments were received on the proposal to amend § 27.321(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–105. No unfavorable comments were received on the proposal to amend § 27.339. Accordingly, the proposal is adopted without substantive change.

Proposal 2–106. Two commentators suggested that the limit pilot torque for rotorcraft twist controls in proposed §§ 27.397(b)(2) and 29.397(b)(2) should be 80 times the radius (R) in inches instead of 133 inch-pounds, as proposed. The FAA agrees that the pilot torque load requirements should be a function of the radius (R). Also the FAA does not expect the radius (R) of any twist control installed on any rotorcraft type certificated in the future to be greater than 133/80 inches. Therefore, the proposals as adopted revise the limit pilot torque load to 80R inch-pounds.

Proposal 2–107. No unfavorable comments were received on the proposal to add a new § 27.563. Accordingly, the proposal is adopted without substantive change.

Proposal 2–108. No unfavorable comments were received on the proposal to amend § 27.603. Accordingly, the proposal is adopted without substantive change.

Proposal 2–109. One commentator disagreed with proposed §§ 27.685(a) and 29.685(a) that would require the consideration of the effects of the freezing of moisture on control systems since §§ 27.685(a) and 29.685(a) currently require that control systems be designed to prevent jamming. While the explanation for this proposal indicated that the freezing of moisture was a common cause of control jamming, the

no interest in the usable fuel tank capacity. The determination of oil level in oil tanks is usually accomplished with the dipstick. Accordingly, the proposal is adopted without substantive change.

Proposal 2–96. The proposed change to § 25.1581 concerning the Airplane Flight Manual is related to proposed amendment § 25.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 25.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–96 will be considered at that time.

Proposal 2–97. No unfavorable comments were received on the proposal to amend § 25.1583. Accordingly, the proposal is adopted without substantive change.

Proposal 2–98. The proposed change to § 25.1587 concerning performance information is related to a proposed amendment to § 25.1587 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposal amendment to § 25.1587 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–98 will be considered at that time.

Proposal 2–99. Two commentators questioned the applicability of proposed § 27.25(c) concerning a total weight that was greater than the maximum weight established under § 27.25(a) and noted that a clarification of the applicable flight requirements was needed. The FAA agrees that proposed § 27.25(c) should be clarified. Proposed §§ 27.25(c) and 29.25(c) are intended to provide only a total weight standard for approving the rotorcraft structure for rotorcraft that will be operated under Part 133. Proposed §§ 27.25(c) and 29.25(c) as adopted have been revised to clarify this intent.

Proposal 2–100. Proposed § 27.65(a)(2)(i) concerning climb gradients for rotorcraft other than helicopters is related to a proposed new § 27.1587(b)(3) that is contained in Airworthiness Review Program, Notice No. 2: Miscellaneous Proposals (Notice 75–10; 40 FR 10802; March 7, 1975). The proposed amendment to § 27.1587 contained in Notice 75–10 is being deferred; see Proposal 2–140. Therefore, the proposed amendment to § 27.65 contained in Notice 75–10 is also deferred until final rulemaking action is taken with respect to the related proposal for § 27.1587. Comments submitted for Proposal 2–100 will be considered at that time.

Proposal 2–101. No unfavorable comments were received on the proposal to amend § 27.141. Accordingly, the proposal is adopted without substantive change.

Proposal 2–102. No unfavorable comments were received on the proposal to amend § 27.173(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–103. No unfavorable comments were received on the proposal to amend § 27.175(d)(2)(iv). Accordingly, the proposal is adopted without substantive change.

Proposal 2–104. No unfavorable comments were received on the proposal to amend § 27.321(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–105. No unfavorable comments were received on the proposal to amend § 27.339. Accordingly, the proposal is adopted without substantive change.

Proposal 2–106. Two commentators suggested that the limit pilot torque for rotorcraft twist controls in proposed §§ 27.397(b)(2) and 29.397(b)(2) should be 80 times the radius (R) in inches instead of 133 inch-pounds, as proposed. The FAA agrees that the pilot torque load requirements should be a function of the radius (R). Also the FAA does not expect the radius (R) of any twist control installed on any rotorcraft type certificated in the future to be greater than 133/80 inches. Therefore, the proposals as adopted revise the limit pilot torque load to 80R inch-pounds.

Proposal 2–107. No unfavorable comments were received on the proposal to add a new § 27.563. Accordingly, the proposal is adopted without substantive change.

Proposal 2–108. No unfavorable comments were received on the proposal to amend § 27.603. Accordingly, the proposal is adopted without substantive change.

Proposal 2–109. One commentator disagreed with proposed §§ 27.685(a) and 29.685(a) that would require the consideration of the effects of the freezing of moisture on control systems since §§ 27.685(a) and 29.685(a) currently require that control systems be designed to prevent jamming. While the explanation for this proposal indicated that the freezing of moisture was a common cause of control jamming, the

Proposal 2–138. *No* unfavorable comments were received on the proposal to amend § 27.1557(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–139. The proposed change to § 27.1581 concerning the Airplane Flight Manual is related to a proposed amendment to § 27.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 27.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–139 will be considered at that time.

Proposal 2–140. The proposed change to § 27.1587 is related to a proposed amendment to § 27.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 27.1587 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2–140 will be considered at that time.

Proposal 2–141. One commentator suggested that the proposed new § 29.25(c) provisions be limited to category B rotorcraft. However no reason for the suggestion was stated. The FAA knows of no reason why the proposed provisions should be limited to category B rotorcraft. One commentator questioned the applicability of proposed new § 29.25(c) and noted that a clarification of the applicable flight requirements was needed. For discussion of this and other comments related to the proposed new § 29.25(c), see Proposal 2–99.

Proposal 2–142. No unfavorable comments were received on the proposal to amend § 29.63. Accordingly, the proposal is adopted without substantive change.

Proposal 2–143. Several commentators recommended that § 29.67(a)(1) be revised by adding the term "at V_{TOSS}" following the words "feet per minute", and by deleting the phrase "without ground effect". Although paragraph (a)(1)(iv) of § 29.67 as proposed defines the speed to be used in meeting the climb requirements of § 29.67(a)(1) as the takeoff safety speed, the FAA does not believe that the term "V_{TOSS}" is appropriate. Also the FAA does not agree that the phrase "without ground effect" should be deleted from § 29.67(a)(1). The FAA requires that all climb performance be conducted outside the influence of ground effect. Accordingly, the proposal is adopted without substantive change.

Proposal 2–144. No unfavorable comments were received on the proposal to amend § 29.71. Accordingly, the proposal is adopted without substantive change.

Proposal 2–145. No unfavorable comments were received on the proposal to amend § 29.75(b)(2). Accordingly, the proposal is adopted without substantive change.

Proposal 2–146. No unfavorable comments were received on the proposal to amend § 29.141. Accordingly, the proposal is adopted without substantive change.

Proposal 2–147. No unfavorable comments were received on the proposal to amend § 29.173(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–148. No unfavorable comments were received on the proposal to amend § 29.175(d)(2)(iv). Accordingly, the proposal is adopted without substantive change.

Proposal 2–149. For comments related to the proposed amendment of § 29.397, see Proposal 2-106.

Proposal 2–150. *No* unfavorable comments were received on the proposal to add a new § 29.563. Accordingly, the proposal is adopted without substantive change.

Proposal 2–151. No unfavorable comments were received on the proposal to amend § 29.603. Accordingly, the proposal is adopted without substantive change.

Proposal 2–152. For comments related to the proposed amendment of § 29.685(a), see Proposal 2-109.

Proposal 2–153. *No* unfavorable comments were received on the proposal to add a new § 29.733(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–154. The proposed change to § 29.783 concerning the requirements applicable to "airstair doors" in transport category rotorcraft is related to proposed amendments to § 25.783 that are contained in Airworthiness Review Program, Notice No. 2: Miscellaneous Proposals (Notice 75–10; 40 FR 10802; March 7, 1975) and in Airworthiness Review Program, Notice No. 8: Aircraft, Engine, and Propeller Airworthiness, and Procedural Proposals (Notice 75–31; 40 FR 29410; July 11, 1975). The proposed

Proposal 2–138. *No* unfavorable comments were received on the proposal to amend § 27.1557(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–139. The proposed change to § 27.1581 concerning the Airplane Flight Manual is related to a proposed amendment to § 27.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 27.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–139 will be considered at that time.

Proposal 2–140. The proposed change to § 27.1587 is related to a proposed amendment to § 27.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 27.1587 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2–140 will be considered at that time.

Proposal 2–141. One commentator suggested that the proposed new § 29.25(c) provisions be limited to category B rotorcraft. However no reason for the suggestion was stated. The FAA knows of no reason why the proposed provisions should be limited to category B rotorcraft. One commentator questioned the applicability of proposed new § 29.25(c) and noted that a clarification of the applicable flight requirements was needed. For discussion of this and other comments related to the proposed new § 29.25(c), see Proposal 2–99.

Proposal 2–142. No unfavorable comments were received on the proposal to amend § 29.63. Accordingly, the proposal is adopted without substantive change.

Proposal 2–143. Several commentators recommended that § 29.67(a)(1) be revised by adding the term "at V_{TOSS}" following the words "feet per minute", and by deleting the phrase "without ground effect". Although paragraph (a)(1)(iv) of § 29.67 as proposed defines the speed to be used in meeting the climb requirements of § 29.67(a)(1) as the takeoff safety speed, the FAA does not believe that the term "V_{TOSS}" is appropriate. Also the FAA does not agree that the phrase "without ground effect" should be deleted from § 29.67(a)(1). The FAA requires that all climb performance be conducted outside the influence of ground effect. Accordingly, the proposal is adopted without substantive change.

Proposal 2–144. No unfavorable comments were received on the proposal to amend § 29.71. Accordingly, the proposal is adopted without substantive change.

Proposal 2–145. No unfavorable comments were received on the proposal to amend § 29.75(b)(2). Accordingly, the proposal is adopted without substantive change.

Proposal 2–146. No unfavorable comments were received on the proposal to amend § 29.141. Accordingly, the proposal is adopted without substantive change.

Proposal 2–147. No unfavorable comments were received on the proposal to amend § 29.173(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–148. No unfavorable comments were received on the proposal to amend § 29.175(d)(2)(iv). Accordingly, the proposal is adopted without substantive change.

Proposal 2–149. For comments related to the proposed amendment of § 29.397, see Proposal 2-106.

Proposal 2–150. *No* unfavorable comments were received on the proposal to add a new § 29.563. Accordingly, the proposal is adopted without substantive change.

Proposal 2–151. No unfavorable comments were received on the proposal to amend § 29.603. Accordingly, the proposal is adopted without substantive change.

Proposal 2–152. For comments related to the proposed amendment of § 29.685(a), see Proposal 2-109.

Proposal 2–153. *No* unfavorable comments were received on the proposal to add a new § 29.733(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–154. The proposed change to § 29.783 concerning the requirements applicable to "airstair doors" in transport category rotorcraft is related to proposed amendments to § 25.783 that are contained in Airworthiness Review Program, Notice No. 2: Miscellaneous Proposals (Notice 75–10; 40 FR 10802; March 7, 1975) and in Airworthiness Review Program, Notice No. 8: Aircraft, Engine, and Propeller Airworthiness, and Procedural Proposals (Notice 75–31; 40 FR 29410; July 11, 1975). The proposed

Proposal 2–138. *No* unfavorable comments were received on the proposal to amend § 27.1557(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–139. The proposed change to § 27.1581 concerning the Airplane Flight Manual is related to a proposed amendment to § 27.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 27.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–139 will be considered at that time.

Proposal 2–140. The proposed change to § 27.1587 is related to a proposed amendment to § 27.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 27.1587 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2–140 will be considered at that time.

Proposal 2–141. One commentator suggested that the proposed new § 29.25(c) provisions be limited to category B rotorcraft. However no reason for the suggestion was stated. The FAA knows of no reason why the proposed provisions should be limited to category B rotorcraft. One commentator questioned the applicability of proposed new § 29.25(c) and noted that a clarification of the applicable flight requirements was needed. For discussion of this and other comments related to the proposed new § 29.25(c), see Proposal 2–99.

Proposal 2–142. No unfavorable comments were received on the proposal to amend § 29.63. Accordingly, the proposal is adopted without substantive change.

Proposal 2–143. Several commentators recommended that § 29.67(a)(1) be revised by adding the term "at V_{TOSS}" following the words "feet per minute", and by deleting the phrase "without ground effect". Although paragraph (a)(1)(iv) of § 29.67 as proposed defines the speed to be used in meeting the climb requirements of § 29.67(a)(1) as the takeoff safety speed, the FAA does not believe that the term "V_{TOSS}" is appropriate. Also the FAA does not agree that the phrase "without ground effect" should be deleted from § 29.67(a)(1). The FAA requires that all climb performance be conducted outside the influence of ground effect. Accordingly, the proposal is adopted without substantive change.

Proposal 2–144. No unfavorable comments were received on the proposal to amend § 29.71. Accordingly, the proposal is adopted without substantive change.

Proposal 2–145. No unfavorable comments were received on the proposal to amend § 29.75(b)(2). Accordingly, the proposal is adopted without substantive change.

Proposal 2–146. No unfavorable comments were received on the proposal to amend § 29.141. Accordingly, the proposal is adopted without substantive change.

Proposal 2–147. No unfavorable comments were received on the proposal to amend § 29.173(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–148. No unfavorable comments were received on the proposal to amend § 29.175(d)(2)(iv). Accordingly, the proposal is adopted without substantive change.

Proposal 2–149. For comments related to the proposed amendment of § 29.397, see Proposal 2-106.

Proposal 2–150. *No* unfavorable comments were received on the proposal to add a new § 29.563. Accordingly, the proposal is adopted without substantive change.

Proposal 2–151. No unfavorable comments were received on the proposal to amend § 29.603. Accordingly, the proposal is adopted without substantive change.

Proposal 2–152. For comments related to the proposed amendment of § 29.685(a), see Proposal 2-109.

Proposal 2–153. *No* unfavorable comments were received on the proposal to add a new § 29.733(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–154. The proposed change to § 29.783 concerning the requirements applicable to "airstair doors" in transport category rotorcraft is related to proposed amendments to § 25.783 that are contained in Airworthiness Review Program, Notice No. 2: Miscellaneous Proposals (Notice 75–10; 40 FR 10802; March 7, 1975) and in Airworthiness Review Program, Notice No. 8: Aircraft, Engine, and Propeller Airworthiness, and Procedural Proposals (Notice 75–31; 40 FR 29410; July 11, 1975). The proposed

Proposal 2–188. The proposal for § 29.1545 concerning the V_{ne} requirements is related to a proposed amendment to § 29.1505 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 29.1545 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–188 will be considered at that time.

Proposal 2–189. For comments related to the proposed amendment of § 29.1549, see Proposal 2-42.

Proposal 2–190. No unfavorable comments were received on the proposal to amend § 29.1555(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–191. No unfavorable comments were received on the proposal to amend § 29.1557(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–192. The proposed change to § 29.1581 concerning the Airplane Flight Manual is related to a proposed amendment to § 29.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 29.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–192 will be considered at that time.

Proposal 2–193. No unfavorable comments were received on the proposal to amend § 31.1. Accordingly, the proposal is adopted without substantive change.

Proposal 2–194. No unfavorable comments were received on the proposal to amend §§ 31.11 and 31.20. Accordingly, the proposal is adopted without substantive change.

Proposal 2–195. No unfavorable comment was received on the proposal to add a new § 31.14 concerning weight limits of manned free balloons. Therefore, the section is adopted without substantive change.

Proposal 2–196. No unfavorable comments were received on the proposal to amend § 31.45. Accordingly, the proposal is adopted without substantive change.

Proposal 2–197. No unfavorable comments were received on the proposal to add a new § 31.46. Accordingly, the proposal is adopted without substantive change.

Proposal 2–198. No unfavorable comments were received on the proposal to amend § 31.63. Accordingly, the proposal is adopted without substantive change.

Proposal 2–199. No unfavorable comments were received on the proposal to amend § 31.85. Accordingly, the proposal is adopted without substantive change.

Proposal 2–200. No unfavorable comments were received on the proposal to amend § 33.1. Accordingly, the proposal is adopted without substantive change.

Proposal 2–201. No unfavorable comments were received on the proposal to amend § 35.1. Accordingly, the proposal is adopted without substantive change.

Proposal 2–202. No unfavorable comments were received on the proposal to amend § 35.39. Accordingly, the proposal is adopted without substantive change.

Proposal 2–203. No unfavorable comments were received on the proposal to amend § 35.41(e). Accordingly, the proposal is adopted without substantive change.

Proposal 2–204. No unfavorable comments were received on the proposal to amend § 35.45(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–205. No unfavorable comments were received on the proposal to amend § 91.14. Accordingly, the proposal is adopted without substantive change.

Proposal 2–206. No unfavorable comments were received on the proposal to amend § 91.21(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–207. One commentator suggested that the proposed change to § 91.33(d)(6) concerning clock requirements should use the language of § 121.305. The FAA believes that a standard should be specified in § 91.33(d)(6) for digital clocks and the proposal as adopted provides a specific standard. See Proposal 2–79.

Proposal 2–208. The intent of the proposed new § 91.193(g) is to require protective breathing equipment that would meet the standards proposed for § 25.1439(b) on certain airplanes operated under Part 91

Proposal 2–188. The proposal for § 29.1545 concerning the V_{ne} requirements is related to a proposed amendment to § 29.1505 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 29.1545 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–188 will be considered at that time.

Proposal 2–189. For comments related to the proposed amendment of § 29.1549, see Proposal 2-42.

Proposal 2–190. No unfavorable comments were received on the proposal to amend § 29.1555(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–191. No unfavorable comments were received on the proposal to amend § 29.1557(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–192. The proposed change to § 29.1581 concerning the Airplane Flight Manual is related to a proposed amendment to § 29.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 29.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–192 will be considered at that time.

Proposal 2–193. No unfavorable comments were received on the proposal to amend § 31.1. Accordingly, the proposal is adopted without substantive change.

Proposal 2–194. No unfavorable comments were received on the proposal to amend §§ 31.11 and 31.20. Accordingly, the proposal is adopted without substantive change.

Proposal 2–195. No unfavorable comment was received on the proposal to add a new § 31.14 concerning weight limits of manned free balloons. Therefore, the section is adopted without substantive change.

Proposal 2–196. No unfavorable comments were received on the proposal to amend § 31.45. Accordingly, the proposal is adopted without substantive change.

Proposal 2–197. No unfavorable comments were received on the proposal to add a new § 31.46. Accordingly, the proposal is adopted without substantive change.

Proposal 2–198. No unfavorable comments were received on the proposal to amend § 31.63. Accordingly, the proposal is adopted without substantive change.

Proposal 2–199. No unfavorable comments were received on the proposal to amend § 31.85. Accordingly, the proposal is adopted without substantive change.

Proposal 2–200. No unfavorable comments were received on the proposal to amend § 33.1. Accordingly, the proposal is adopted without substantive change.

Proposal 2–201. No unfavorable comments were received on the proposal to amend § 35.1. Accordingly, the proposal is adopted without substantive change.

Proposal 2–202. No unfavorable comments were received on the proposal to amend § 35.39. Accordingly, the proposal is adopted without substantive change.

Proposal 2–203. No unfavorable comments were received on the proposal to amend § 35.41(e). Accordingly, the proposal is adopted without substantive change.

Proposal 2–204. No unfavorable comments were received on the proposal to amend § 35.45(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–205. No unfavorable comments were received on the proposal to amend § 91.14. Accordingly, the proposal is adopted without substantive change.

Proposal 2–206. No unfavorable comments were received on the proposal to amend § 91.21(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–207. One commentator suggested that the proposed change to § 91.33(d)(6) concerning clock requirements should use the language of § 121.305. The FAA believes that a standard should be specified in § 91.33(d)(6) for digital clocks and the proposal as adopted provides a specific standard. See Proposal 2–79.

Proposal 2–208. The intent of the proposed new § 91.193(g) is to require protective breathing equipment that would meet the standards proposed for § 25.1439(b) on certain airplanes operated under Part 91

Proposal 2–188. The proposal for § 29.1545 concerning the V_{ne} requirements is related to a proposed amendment to § 29.1505 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 29.1545 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–188 will be considered at that time.

Proposal 2–189. For comments related to the proposed amendment of § 29.1549, see Proposal 2-42.

Proposal 2–190. No unfavorable comments were received on the proposal to amend § 29.1555(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–191. No unfavorable comments were received on the proposal to amend § 29.1557(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–192. The proposed change to § 29.1581 concerning the Airplane Flight Manual is related to a proposed amendment to § 29.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 29.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–192 will be considered at that time.

Proposal 2–193. No unfavorable comments were received on the proposal to amend § 31.1. Accordingly, the proposal is adopted without substantive change.

Proposal 2–194. No unfavorable comments were received on the proposal to amend §§ 31.11 and 31.20. Accordingly, the proposal is adopted without substantive change.

Proposal 2–195. No unfavorable comment was received on the proposal to add a new § 31.14 concerning weight limits of manned free balloons. Therefore, the section is adopted without substantive change.

Proposal 2–196. No unfavorable comments were received on the proposal to amend § 31.45. Accordingly, the proposal is adopted without substantive change.

Proposal 2–197. No unfavorable comments were received on the proposal to add a new § 31.46. Accordingly, the proposal is adopted without substantive change.

Proposal 2–198. No unfavorable comments were received on the proposal to amend § 31.63. Accordingly, the proposal is adopted without substantive change.

Proposal 2–199. No unfavorable comments were received on the proposal to amend § 31.85. Accordingly, the proposal is adopted without substantive change.

Proposal 2–200. No unfavorable comments were received on the proposal to amend § 33.1. Accordingly, the proposal is adopted without substantive change.

Proposal 2–201. No unfavorable comments were received on the proposal to amend § 35.1. Accordingly, the proposal is adopted without substantive change.

Proposal 2–202. No unfavorable comments were received on the proposal to amend § 35.39. Accordingly, the proposal is adopted without substantive change.

Proposal 2–203. No unfavorable comments were received on the proposal to amend § 35.41(e). Accordingly, the proposal is adopted without substantive change.

Proposal 2–204. No unfavorable comments were received on the proposal to amend § 35.45(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–205. No unfavorable comments were received on the proposal to amend § 91.14. Accordingly, the proposal is adopted without substantive change.

Proposal 2–206. No unfavorable comments were received on the proposal to amend § 91.21(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–207. One commentator suggested that the proposed change to § 91.33(d)(6) concerning clock requirements should use the language of § 121.305. The FAA believes that a standard should be specified in § 91.33(d)(6) for digital clocks and the proposal as adopted provides a specific standard. See Proposal 2–79.

Proposal 2–208. The intent of the proposed new § 91.193(g) is to require protective breathing equipment that would meet the standards proposed for § 25.1439(b) on certain airplanes operated under Part 91

Proposal 2–188. The proposal for § 29.1545 concerning the V_{ne} requirements is related to a proposed amendment to § 29.1505 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 29.1545 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–188 will be considered at that time.

Proposal 2–189. For comments related to the proposed amendment of § 29.1549, see Proposal 2-42.

Proposal 2–190. No unfavorable comments were received on the proposal to amend § 29.1555(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–191. No unfavorable comments were received on the proposal to amend § 29.1557(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–192. The proposed change to § 29.1581 concerning the Airplane Flight Manual is related to a proposed amendment to § 29.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 29.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–192 will be considered at that time.

Proposal 2–193. No unfavorable comments were received on the proposal to amend § 31.1. Accordingly, the proposal is adopted without substantive change.

Proposal 2–194. No unfavorable comments were received on the proposal to amend §§ 31.11 and 31.20. Accordingly, the proposal is adopted without substantive change.

Proposal 2–195. No unfavorable comment was received on the proposal to add a new § 31.14 concerning weight limits of manned free balloons. Therefore, the section is adopted without substantive change.

Proposal 2–196. No unfavorable comments were received on the proposal to amend § 31.45. Accordingly, the proposal is adopted without substantive change.

Proposal 2–197. No unfavorable comments were received on the proposal to add a new § 31.46. Accordingly, the proposal is adopted without substantive change.

Proposal 2–198. No unfavorable comments were received on the proposal to amend § 31.63. Accordingly, the proposal is adopted without substantive change.

Proposal 2–199. No unfavorable comments were received on the proposal to amend § 31.85. Accordingly, the proposal is adopted without substantive change.

Proposal 2–200. No unfavorable comments were received on the proposal to amend § 33.1. Accordingly, the proposal is adopted without substantive change.

Proposal 2–201. No unfavorable comments were received on the proposal to amend § 35.1. Accordingly, the proposal is adopted without substantive change.

Proposal 2–202. No unfavorable comments were received on the proposal to amend § 35.39. Accordingly, the proposal is adopted without substantive change.

Proposal 2–203. No unfavorable comments were received on the proposal to amend § 35.41(e). Accordingly, the proposal is adopted without substantive change.

Proposal 2–204. No unfavorable comments were received on the proposal to amend § 35.45(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–205. No unfavorable comments were received on the proposal to amend § 91.14. Accordingly, the proposal is adopted without substantive change.

Proposal 2–206. No unfavorable comments were received on the proposal to amend § 91.21(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–207. One commentator suggested that the proposed change to § 91.33(d)(6) concerning clock requirements should use the language of § 121.305. The FAA believes that a standard should be specified in § 91.33(d)(6) for digital clocks and the proposal as adopted provides a specific standard. See Proposal 2–79.

Proposal 2–208. The intent of the proposed new § 91.193(g) is to require protective breathing equipment that would meet the standards proposed for § 25.1439(b) on certain airplanes operated under Part 91

when there are compensating factors that provide an equivalent level of safety. Such determinations are commonly referred to as ''equivalent safety findings.'' Section 21.21(b)(2) provides for the denial of a type certificate, notwithstanding a showing of compliance with the applicable airworthiness standards designated in accordance with § 21.17, if the Administrator finds an unsafe feature or characteristic of the product for the category in which certification is requested.

Sections 21.16, 21.17, and 21.21, taken together with FAA policy in designating the applicable regulations must recognize and balance four important considerations: (1) the FAA has an obligation under Section 601 of the Federal Aviation Act of 1958 to keep the airworthiness standards of this subchapter (i.e., FARs 23, 25, 27, 29, 31, 33, and 35) as current as practicable; (2) the type certificate applicant has a right and a need to know, in very specific terms, what the applicable airworthiness standards will be in order to finalize the detail design of its product and to enable the applicant to make reasonable performance guarantees to its potential customers; (3) in the interests of safety, rapid technological advances presently being made by the civil aircraft industry require that the FAA be able to issue special conditions to address truly novel or unusual design features that it has, as yet, not had an adequate opportunity to envisage in the airworthiness standards through the general rulemaking process; and (4) because the airworthiness standards of this subchapter are intentionally objective in nature to allow flexibility in design, the FAA must retain the prerogatives both to make equivalent safety findings and to deny a type certificate whenever an unsafe design feature or characteristic is. found during the type certification process.

The phrase ''novel or unusual'' as used in § 21.16 is a very relative term. As used hereafter in applying § 21.16 to justify the issuance of special conditions, "novel or unusual" will be taken with respect to the state of technology envisaged by the applicable airworthiness standards of this subchapter. It must be recognized that in some areas which will vary from time to time the state of the regulations may somewhat lag the state of the art in new design because of the rapidity in which the state of the art is advancing in civil aeronautical design and because of the time required to develop the experience base needed by the FAA to proceed with general rulemaking. Applicants for type certification of a new design have the opportunity to mitigate the impact of not knowing the precise airworthiness standards to be applied for "novel or unusual design features" by consulting with the FAA early in their certification planning when such features are suspected or known by the applicant to exist. It should also be recognized that, because of the intentional objective nature of the airworthiness standards of this subchapter, many new design features which might be thought of as "novel or unusual design features" may already be adequately covered by existing regulations, thus obviating the need to issue special conditions.

Henceforth, the special condition will not be issued for general upgrading of the applicable airworthiness standards when novel or unusual design features are not involved. Whenever the FAA determines that an upgrading of the airworthiness standards of this subchapter is warranted, the upgrading will be promulgated as an amendment to this subchapter consistent with the general rulemaking procedures of FAR Part 11, the Administrative Procedure Act, and Executive Order 12044. Should the FAA conclude that there is a compelling safety need to apply a proposed amendment retroactively to designs already type certificated or to designs for which a type certificate application is in progress, the retroactive aspects of the proposed amendment, if supportable by a regulatory analysis completed in accordance with Executive Order 12044, will be announced in the notice or proposed rulemaking for that amendment. Public comments on the proposed retroactive aspects will be considered in determining the applicability of the adopted rule.

A number of products for which special conditions have not as yet been issued are undergoing type certification at the time of this amendment. Should the FAA conclude that recent or future amendments to this subchapter should be applied to these products that would not otherwise be applicable under § 21.17(a)(1) then an amendment to require retroactive application will be proposed and acted upon through the general rulemaking process explained above, in lieu of issuing special conditions under § 21.16.

Also, the provisions of § 21.21(b)(2) will no longer be used to justify the issuance of special conditions. However, just as an Airworthiness Directive may be issued under Part 39 to require the correction of an unsafe condition that is likely to exist or develop in a product of the same type design, notwithstanding a showing of compliance with the applicable airworthiness standards, § 21.21(b)(2) may continue to be used to deny issuance of a type certificate if a similar unsafe feature or characteristic is found during the type certification process, notwithstanding a showing of compliance with requirements designated by § 21.17. The unsafe features and characteristics envisaged by § 21.21(b)(2) are those related to specific design configuration or product characteristics of a particular design, that one would not normally expect the applicable airworthiness standards to specifically preclude because of their intentionally objective nature.

It is the practice of the FAA to develop and publish a Type Certificate Data Sheet as an integral part of each type certificate. The type certification basis is recorded on the Type Certificate Data Sheet

when there are compensating factors that provide an equivalent level of safety. Such determinations are commonly referred to as ''equivalent safety findings.'' Section 21.21(b)(2) provides for the denial of a type certificate, notwithstanding a showing of compliance with the applicable airworthiness standards designated in accordance with § 21.17, if the Administrator finds an unsafe feature or characteristic of the product for the category in which certification is requested.

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It is the practice of the FAA to develop and publish a Type Certificate Data Sheet as an integral part of each type certificate. The type certification basis is recorded on the Type Certificate Data Sheet

No adverse comment was received on the proposal to replace the word 'airplanes'' in § 21.35(b)(2) with the word "aircraft" and this amendment to § 21.35(b)(2) is adopted without change.

Proposal 8–5. A commenter objects to the continued airworthiness provisions of § 21.50(b) (and also proposed § 21.31 (c)) contending that-(1) continued airworthiness is the responsibility of the operator/owner; (2) current regulations in Parts 23 and 25 already require manufacturers to make available recommended maintenance procedures for the product at the time of its delivery; (3) current operating rules require the operator/owner to establish and comply with a maintenance program; and (4) with respect to transport airplanes, the present FAA Maintenance Review Board (MRB) system is an entirely satisfactory way of establishing the means for maintaining airworthiness. Current FAA practice allows operators of new transport category airplanes to utilize FAA MRB recommendations (reference FAA Advisory Circular No. AC 121–22) for starting their maintenance programs, and then vary them with FAA approval as experience and operating conditions dictate. The commenter points out that, contrary to that practice, the amendment will require the manufacturer to obtain FAA approval of its recommended maintenance procedures before the airplane is type certificated, and to obtain FAA approval of revisions to those procedures (necessitated by any improvement change in the airplane) before approval of the change itself. This, the commenter states, will impose a severe and unnecessary hardship on the manufacturer.

On the first and second points, although the operator/owner does have responsibility for continued airworthiness, the FAA has found that the recommended maintenance procedures made available under current regulations are frequently inadequate in scope and content, and often do not provide a sound basis for the operator/owner to maintain the airworthiness of the aircraft. The FAA has concluded that the lack of such recommended maintenance procedures can best be remedied by requiring that they be made available to owners and operators by the type certificate or supplemental type certificate holder. On the third point, while it is true that not all operators/owners are required to establish and comply with a continuous airworthiness program, those that voluntarily wish to set up such a program are often handicapped by the lack of comprehensive instructions, which would be remedied by § 21.50(b). On the other hand, those required to establish a program will benefit from the more detailed and comprehensive instructions made available to them under § 21.50(b). On the fourth point, which is directed toward aircraft that will be maintained in accordance with an FAA approved operations specification and maintenance program under Parts 121, 123, 127, 135, or an approved inspection program under § 91.217(e), the FAA recognizes that these procedures for maintaining airworthiness of the products have functioned satisfactorily. In this regard, the FAA expects that operating segments of the air transportation industry would continue to work with type certification applicants in defining adequate maintenance instructions prior to type certification. The FAA MRB document, which is a product of contributions made by both the operators and manufacturer, could be picked up by the type design holder and included as a part of the required Instructions for Continued Airworthiness, thus continuing the usefulness of the existing MRB practices for the original entry into service of new product designs. Likewise, the additional maintenance instructions that would be required and which are not typical to MRB documents, but are presently required in air carrier operators' FAA approved maintenance programs, could also be picked up by the type design holder. Therefore, the screening process that would be utilized by the FAA in reviewing such maintenance documents would not unnecessarily delay type certification or approval of design changes after certification. See also the discussion under Proposal 8–3.

A commenter questions the need for the provision in § 21.50(b) requiring that the Airworthiness Limitations section of the Instructions for Continued Airworthiness be furnished with each aircraft, engine, or propeller. The FAA agrees that this provision is unnecessary, as the type certificate holder must make the manual available, and the operator/owner must comply. To require a manual to be furnished with each equipment would be redundant, and in some instances, would be unnecessary. Accordingly, the requirement that the Airworthiness Limitations section be furnished with each airplane or product is revised to require that the section be furnished to each owner of the type.

A commenter objects to § 21.50(b) insofar as it applies to rotorcraft type certificated under Parts 27 and 29, contending that the manufacturer is already required under those parts to furnish a maintenance manual, which has allegedly been proven adequate. The FAA does not agree. The proposed Instructions for Continued Airworthiness, which are broader in scope and more detailed than the maintenance manual currently required under Parts 27 and 29, would provide the operator/owner with the minimum amount of information needed to maintain the airworthiness of increasingly complex rotorcraft currently being designed.

A commenter suggests that § 21.50(b) be revised to make it clear that an aircraft manufacturer need not supply Instructions for Continued Airworthiness pertaining to engines and propellers until the complete aircraft is delivered to the first retail purchaser. The continued airworthiness instructions for propellers and engines should be provided to the aircraft manufacturer to facilitate transmittal to purchasers of the aircraft.

No adverse comment was received on the proposal to replace the word 'airplanes'' in § 21.35(b)(2) with the word "aircraft" and this amendment to § 21.35(b)(2) is adopted without change.

Proposal 8–5. A commenter objects to the continued airworthiness provisions of § 21.50(b) (and also proposed § 21.31 (c)) contending that-(1) continued airworthiness is the responsibility of the operator/owner; (2) current regulations in Parts 23 and 25 already require manufacturers to make available recommended maintenance procedures for the product at the time of its delivery; (3) current operating rules require the operator/owner to establish and comply with a maintenance program; and (4) with respect to transport airplanes, the present FAA Maintenance Review Board (MRB) system is an entirely satisfactory way of establishing the means for maintaining airworthiness. Current FAA practice allows operators of new transport category airplanes to utilize FAA MRB recommendations (reference FAA Advisory Circular No. AC 121–22) for starting their maintenance programs, and then vary them with FAA approval as experience and operating conditions dictate. The commenter points out that, contrary to that practice, the amendment will require the manufacturer to obtain FAA approval of its recommended maintenance procedures before the airplane is type certificated, and to obtain FAA approval of revisions to those procedures (necessitated by any improvement change in the airplane) before approval of the change itself. This, the commenter states, will impose a severe and unnecessary hardship on the manufacturer.

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A commenter suggests that § 21.50(b) be revised to make it clear that an aircraft manufacturer need not supply Instructions for Continued Airworthiness pertaining to engines and propellers until the complete aircraft is delivered to the first retail purchaser. The continued airworthiness instructions for propellers and engines should be provided to the aircraft manufacturer to facilitate transmittal to purchasers of the aircraft.

In addition, the commenter suggests that proposed § 21.197(a)(3)(iii) be amended with a reference to the maintenance and inspection programs called for under § 21.195 for Experimental and Subpart C Provisional Type Certificates. Such procedures would unnecessarily complicate the issuance of permits for customer demonstration flights and would in effect nullify the original proposal. The portion of the proposal calling for maintenance and inspection programs in these instances is therefore withdrawn.

Proposal 8–11. No unfavorable comments were received on the proposal to amend § 23.253(b)(3) to ensure that high speed buffeting does not become severe enough to prevent the pilot from reading the instruments or controlling the airplane. Accordingly, the proposal is adopted without substantive charge. Also see Proposal 8–28.

Proposal 8–12. No unfavorable comments were received on the proposal to amend § 23.361 to redefine the limit engine torque load conditions to be considered for turbine engine installations and to make other clarifying changes. Accordingly, the proposal is adopted without substantive change.

Proposal 8–13. The FAA does not agree with a commenter who suggests that the lead-in of § 23.371 be revised to make the gyroscopic load requirements applicable to piston as well as turbine engines. The FAA has no information to indicate a need for coverage of piston engines in this regulation, nor was any submitted by the commenter.

Another commenter concurs with § 23.371, assuming that a rational analysis of loads under § 23.371(a) is an alternate to the loads specified in § 23.371(b). This assumption is correct. No change to § 23.371 was proposed in this regard. Section 23.371 is adopted without substantive change.

Proposal 8–14. A commenter suggests that the word "operated" in § 23.729(c) be replaced by the word "lowered". The commenter states that the intent of the rule is to ensure that the gear can be lowered in an emergency. The FAA concurs, but the word "extended" is used to preserve the internal consistency of the section. Section 23.729(c) is revised accordingly.

This commenter also questions whether § 23.729(e) would require an "up lock". The commenter is evidently referring to a "lock" in the sense of a positive means other than hydraulic pressure, as required to keep the gear extended by § 23.729(b). Section 23.729(e) contains no such requirement.

Another commenter suggests that the second sentence of § 23.729(e) be revised to add the words "and secured" after the words "fully extended" and "fully retracted" in order to clarify what functions the lights would indicate to the pilot. The first sentence of the paragraph clearly states that the indicators should inform the pilot that the gear is secured in the extended or retracted position.

A commenter states that the proposal is redundant since the requirement is already in effect. The FAA does not agree. This is one of several new provisions being incorporated into the current regulations to assure the reliability of small land-plane landing gear systems.

After further review, the FAA has determined that the words "and warning device" should be removed from the heading of § 23.729(e) to preclude confusion between the requirements of this paragraph and those of § 23.729(f). Section 23.729 is adopted with editorial changes and the revisions discussed.

Proposal 8–15. A commenter objects to § 23.903(f) on the grounds that it imposes new and unjustified criteria for restart capability of reciprocating engine powered airplanes. The FAA believes the requirement to be fully justified. Accidents have occurred with multiengine reciprocating powered, as well as turbine powered airplanes because pilots have not been adequately apprised of the engine restart envelope for their airplane. Therefore, the requirement must apply to both types of engine installations.

This commenter further states that § 23.903(g) is acceptable provided that the "restart requirement is understood to be within the restart envelope for the aircraft (if one is approved for the aircraft)." Present § 23.903(e)(3), as applicable to turbine engine powered small airplanes, states that it must be possible to restart an engine in flight, and § 23.903(f) requires that an approved restart envelope be established. Therefore, development of a restart envelope would be required for the approval of each turbine engine powered small airplane. As adopted, § 23.903(g) requires that, following in-flight shutdown of all engines, electrical power for ignition exists throughout the approved restart envelope.

Another commenter states that it seems inconsistent to require that electrical power be provided for ignition but not for rotational capability sufficient for an engine start. The FAA does not agree. As adopted, the rule provides for those circumstances where engine windmilling speed is sufficient for restarting but insufficient to provide electrical power for ignition.

The proposal is adopted without substantive change. However, § 23.903(f) is revised to make it clear that the specified in-flight engine restart capability is required throughout the required altitude and airspeed envelope.

In addition, the commenter suggests that proposed § 21.197(a)(3)(iii) be amended with a reference to the maintenance and inspection programs called for under § 21.195 for Experimental and Subpart C Provisional Type Certificates. Such procedures would unnecessarily complicate the issuance of permits for customer demonstration flights and would in effect nullify the original proposal. The portion of the proposal calling for maintenance and inspection programs in these instances is therefore withdrawn.

Proposal 8–11. No unfavorable comments were received on the proposal to amend § 23.253(b)(3) to ensure that high speed buffeting does not become severe enough to prevent the pilot from reading the instruments or controlling the airplane. Accordingly, the proposal is adopted without substantive charge. Also see Proposal 8–28.

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Another commenter concurs with § 23.371, assuming that a rational analysis of loads under § 23.371(a) is an alternate to the loads specified in § 23.371(b). This assumption is correct. No change to § 23.371 was proposed in this regard. Section 23.371 is adopted without substantive change.

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This commenter also questions whether § 23.729(e) would require an "up lock". The commenter is evidently referring to a "lock" in the sense of a positive means other than hydraulic pressure, as required to keep the gear extended by § 23.729(b). Section 23.729(e) contains no such requirement.

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Another commenter suggests that the second sentence of § 23.729(e) be revised to add the words "and secured" after the words "fully extended" and "fully retracted" in order to clarify what functions the lights would indicate to the pilot. The first sentence of the paragraph clearly states that the indicators should inform the pilot that the gear is secured in the extended or retracted position.

A commenter states that the proposal is redundant since the requirement is already in effect. The FAA does not agree. This is one of several new provisions being incorporated into the current regulations to assure the reliability of small land-plane landing gear systems.

After further review, the FAA has determined that the words "and warning device" should be removed from the heading of § 23.729(e) to preclude confusion between the requirements of this paragraph and those of § 23.729(f). Section 23.729 is adopted with editorial changes and the revisions discussed.

Proposal 8–15. A commenter objects to § 23.903(f) on the grounds that it imposes new and unjustified criteria for restart capability of reciprocating engine powered airplanes. The FAA believes the requirement to be fully justified. Accidents have occurred with multiengine reciprocating powered, as well as turbine powered airplanes because pilots have not been adequately apprised of the engine restart envelope for their airplane. Therefore, the requirement must apply to both types of engine installations.

This commenter further states that § 23.903(g) is acceptable provided that the "restart requirement is understood to be within the restart envelope for the aircraft (if one is approved for the aircraft)." Present § 23.903(e)(3), as applicable to turbine engine powered small airplanes, states that it must be possible to restart an engine in flight, and § 23.903(f) requires that an approved restart envelope be established. Therefore, development of a restart envelope would be required for the approval of each turbine engine powered small airplane. As adopted, § 23.903(g) requires that, following in-flight shutdown of all engines, electrical power for ignition exists throughout the approved restart envelope.

Another commenter states that it seems inconsistent to require that electrical power be provided for ignition but not for rotational capability sufficient for an engine start. The FAA does not agree. As adopted, the rule provides for those circumstances where engine windmilling speed is sufficient for restarting but insufficient to provide electrical power for ignition.

The proposal is adopted without substantive change. However, § 23.903(f) is revised to make it clear that the specified in-flight engine restart capability is required throughout the required altitude and airspeed envelope.

§ XX.3(a)(5)(i). A commenter recommends that applicants be allowed to refer to a component manufacturer as a source of information instead of including the information in the Instructions for Continued Airworthiness. The commenter argues that many component manufacturers prefer to maintain control of their maintenance information to ensure that it is up to date. In other cases, maintenance at the factory may be required because of the complexity of the equipment. The FAA recognizes that some accessories, instruments, and equipment have an exceptionally high degree of complexity, requiring specialized maintenance techniques, test equipment, or expertise. In such cases, it would be in the interest of safety to allow the applicant to refer to the appropriate manufacturer in the maintenance instructions. The FAA does not agree, however, that such reference should be allowed in other circumstances. Section XX.3(a)(5)(i) (redesignated § XX.3(b)(1)) is revised accordingly.

A commenter recommends that the last sentence of § XX.3(a)(5)(i), be revised to allow reference to a separate inspection program, rather than include it in the maintenance instructions, so that the inspection program could be better kept current and also tailored to an individual operator's needs. The FAA does not agree. The inspection program must be set forth in the Instructions for Continued Airworthiness to ensure its availability to those who will benefit from it.

The FAA, after further study of § XX.3(a)(5)(i), has decided that the provision should specifically require a description of applicable maintenance or wear tolerances. Section XX.3(a)(5)(i)) (redesignated § XX.3(b)(1)) is clarified in this regard.

§ XX.3(a)(5)(ii). A commenter objects to the words "could occur" in this paragraph because it encompasses everything within the realm of possibility, thereby unnecessarily increasing the volume of the maintenance instructions. The phrase "probable malfunctions" replaces the phrase "typical malfunctions that could occur" in § XX.3(a)(5)(iii) (redesignated § XX.3(b)(2)).

§ XX.3(a)(5)(iii). A commenter suggests that this paragraph would be clearer if the first three words and the last five words are deleted. Section XX.3(a)(5)(iii)) (redesignated § XX.3(b)(3)) is revised accordingly.

§ XX.3(a)(5)(iv). A commenter suggests revision of this paragraph to make it clear that the overweight landing check refers to the condition in which a certificated landing weight is lower than certificated takeoff weight, since the aircraft manufacturer cannot speculate what damage might be done to an aircraft that takes off and must immediately land at a weight near the certificated takeoff weight. This comment may have merit for certain aircraft. Moreover, since an overweight landing is but one of several occurrences which would necessitate a check to determine aircraft damage, to single out one occurrence would imply that the others need not be covered in the maintenance instructions. Accordingly, the words "checks after an overweight landing' " are deleted from § XX.3(a)(5)(iv) (redesignated § XX.3(b)(4)).

§ XX.3(b). A commenter recommends deletion of the requirement for an overhaul manual or section, contending that-(l) there are many products that, for safety reasons, should not need to be overhauled; and (2) the manufacturer must make the technical assessment as to whether a product can be safely overhauled. In the light of these comments, and after further consideration, the FAA finds that those portions of § XX.3(b) that provide for overhaul information only (except for engines), should not be required in the Instructions for Continued Airworthiness. Accordingly, §§ XX.3(b)(1)(i), XX.3(b)(1)(ii), XX.3(b)(1)(iv), XX.3(b)(1)(viii), and XX.3(b)(3), are withdrawn. The other provisions of § XX.3(b) specify information that is needed for purposes other than overhaul.

§ XX.3(b)(1)(iii). No adverse comment was received on this proposal to require structural access plate information. Accordingly, it is adopted as proposed, but redesignated § XX.3(c).

§ XX.3(b)(1)(v). No adverse comment was received on this proposal to require instructions on special inspection techniques. Accordingly, it is adopted as proposed, but redesignated § XX.3(d).

§ XX.3(b)(1)(vi). A commenter points out that no part can be restored to its original condition by protective coatings or treatments. The FAA agrees, and § XX.3(b)(1)(vi) (redesignated § XX.3(e)) is revised to make this clear and to require only the information necessary to apply protective treatments to the structure after inspection.

§ XX.3(b)(1)(vii). No adverse comment was received on this proposal to require data on structural fasteners. Accordingly, it is adopted as proposed, but redesignated § XX.3(f).

§ XX.3(b)(1)(ix). No adverse comment was received on the proposal to require a list of special tools. Accordingly, it is adopted as proposed, but redesignated § XX.3(g).

§ XX.3(c). Three commenters object to the concept of supplying generalized repair data. One contended that-(l) the nature of the damage may not be known in a particular case, though it may appear to fall under a general repair "fix"; (2) the safety of the product may be seriously impaired by repairs made in such instances; and (3) the manufacturer can provide alternate means for a mechanic to obtain

§ XX.3(a)(5)(i). A commenter recommends that applicants be allowed to refer to a component manufacturer as a source of information instead of including the information in the Instructions for Continued Airworthiness. The commenter argues that many component manufacturers prefer to maintain control of their maintenance information to ensure that it is up to date. In other cases, maintenance at the factory may be required because of the complexity of the equipment. The FAA recognizes that some accessories, instruments, and equipment have an exceptionally high degree of complexity, requiring specialized maintenance techniques, test equipment, or expertise. In such cases, it would be in the interest of safety to allow the applicant to refer to the appropriate manufacturer in the maintenance instructions. The FAA does not agree, however, that such reference should be allowed in other circumstances. Section XX.3(a)(5)(i) (redesignated § XX.3(b)(1)) is revised accordingly.

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Proposal 8-32. Several commenters object to the proposed horizontal stabilizer ' 'trim-in-motion' ' aural warning requirement of § 25.677(e) on the grounds that the aural environment in today's cockpits is already cluttered and that finding new and distinctive aural warnings is becoming difficult. They further suggest that small increments of trim change should not cause aural warning, and that warnings should be given only when a safety-of-flight hazard exists. One commenter suggests that there is no need for separate aural warning on aircraft having direct trim control wheels in the cockpit.

The FAA agrees with the comments and upon further review concludes that the proposal is premature and unworkable. Accordingly, it is withdrawn for further study.

Proposal 8-33. Several adverse and supporting comments were received on the proposal to add a new § 25.685(e) requiring arrangement of control systems to provide an airplane with the capability of continued safe flight and landing in the event of an inflight localized structural failure. Several commenters agree with the intent of the proposal and propose minor changes. One commenter agrees with the intent of the proposal, but believes that only failures which have not been shown to be extremely improbable need be considered. Commenters state that the intent of the proposed rule change is already encompassed by § 25.365(e) which would require that floor failure resulting from rapid decompression be shown to be extremely improbable.

A commenter further states that present § 25.671(c) requires control systems to be designed to be tolerant of failures, and that control system damage is more likely from other sources. The commenter claims that service experience and rational analysis show that the floor structure provides the best available protection for the control system from damage from these other sources.

After further study the FAA agrees with the commenters that the primary objectives of this proposal are adequately covered by several existing sections of FAR 25. For example: § 25.365(e) requires that the floor be designed for pressure vessel opening which is a function of the cross-sectional area of the fuselage; § 25.571 requires all structure to be damage tolerant where practical; § 25.671 requires that control systems be tolerant of failures, including exterior damage; § 25.629 requires freedom from flutter under failure conditions; § 25.631 requires protection of controls in the empennage structure from bird strikes; and § 25.901(d) requires design precautions be taken to minimize the hazards to the airplane, including control systems, in the event of an engine rotor failure. The proposal therefore is withdrawn.

Proposal 8-34. For an explanation of the withdrawal of the proposals concerning automatic systems that affect airplane performance, one of which is the proposal to add a new § 25.705, see Proposal 8-26.

Proposal 8-35 and 2-59. Several commenters object to the requirement in § 25.783(e) that provisions for the inspection of door locking mechanisms must be discernable under all possible lighting conditions. The commenters state that allowance should be made for use of supplemental lighting such as a flashlight to aid in the inspection. The FAA agrees and the section is revised accordingly.

A commenter states that direct visual inspection is only needed for external doors for which the initial opening movement is not inward and which are pressurized or for which an inadvertent opening could prevent continued safe flight and landing. Although these comments have merit, they go beyond the scope of Proposal 8-35 and interested parties have not had an opportunity to comment on these changes. No change to the section is being made based on these comments. Several commenters object to the redundancy of a dual warning system requirement and state that in lieu of redundancy, a reliability level should be specified. Further comments state that all external doors do not require this level of reliability. The FAA agrees that this reliability level could be specified and should apply only to external doors for which initial movement is not inward, and the section is changed accordingly. The present language defining where door warning systems are required is retained, as no change in present practice is intended.

A commenter suggests that § 25.783(e) should specify several good design practices. These design practices are desirable but are not essential, since the necessary level of safety can be obtained by alternate means under § 25.783.

Several commenters object to new § 25.783(f), suggesting that it apply only to nonplug type doors and doors whose loss would present a probable hazard. The FAA agrees that provisions to prevent unsafe pressurization can be limited to doors whose loss would present a probable hazard. However, the FAA does not agree that it should be limited to nonplug type doors because a plug door is defined as one whose initial opening is inward and this feature does not necessarily provide complete assurance that an unsafe pressurization will not occur with subsequent opening of the door in flight. The clarifying phrase "to an unsafe level" has been added to § 25.783(f). The intent is to prevent pressurization to a level which would be hazardous if an unlocked external door inadvertently opened.

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The FAA agrees with the comments and upon further review concludes that the proposal is premature and unworkable. Accordingly, it is withdrawn for further study.

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After further study the FAA agrees with the commenters that the primary objectives of this proposal are adequately covered by several existing sections of FAR 25. For example: § 25.365(e) requires that the floor be designed for pressure vessel opening which is a function of the cross-sectional area of the fuselage; § 25.571 requires all structure to be damage tolerant where practical; § 25.671 requires that control systems be tolerant of failures, including exterior damage; § 25.629 requires freedom from flutter under failure conditions; § 25.631 requires protection of controls in the empennage structure from bird strikes; and § 25.901(d) requires design precautions be taken to minimize the hazards to the airplane, including control systems, in the event of an engine rotor failure. The proposal therefore is withdrawn.

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Proposal 8-44. For a discussion of proposed § 25.905(c), see the discussion under Proposal 8-103. The proposal to add a new § 25.905(c) is adopted without substantive change.

Proposals 8-45 and 8-96. The proposed amendments to §§ 25.939 and 33.65 are being deferred for consideration in a forthcoming notice of proposed rulemaking of the Aircraft Engine Regulatory Review Program.

Proposals 8-46, 3-35, and 8-47. Final action on Proposals 8-46, 3-35, and 8-47 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; October 30, 1978).

Proposal 8-48. For an explanation of the withdrawal of the proposals concerning automatic takeoff thrust control systems, one of which is the proposal to add a new §25.1143(f), see Proposal 8-26.

Proposals 8-49 and 3-41. Final action on Proposals 8-49 and 3-41 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; October 30, 1978).

Proposal 8-50. For an explanation of withdrawal of the proposals concerning automatic takeoff thrust control systems, one of which is the addition of a new § 25.1305(c)(9), see Proposal 8-26.

One commenter objects to revising § 25.1305(d)(1), stating that significant aerodynamic forces acting on the power-plant nacelle make the direct measurement of thrust impractical. The FAA agrees that such forces may be significant. This commenter further objects to the revision, stating that it is beyond the state of the art to prohibit a parameter from being used if the accuracy of the indication will be adversely affected by any engine malfunction or damage. The FAA agrees that precise values of thrust provided by a malfunctioning, damaged, or deteriorated engine are unnecessary, provided that any changes in thrust due to engine malfunction, damage, or deterioration are indicated to the pilot. The paragraph is revised to require that the indication must be based on the direct measurement of thrust or of parameters that are directly related to thrust.

Although concurring with §25.1305(d)(1), one commenter states that he would prefer to retain the existing requirements and delete the words "„ or to indicate a gas stream pressure that can be related to thrust,' '. The FAA does not agree. The change suggested by this commenter would eliminate the requirement for thrust information and would retain the requirement for change-of-thrust information only. It also would provide a lower level of safety than the adopted paragraph.

This commenter also states that § 25.1305(d)(1) should be complementary to a similar requirement in Part 33 of this chapter. The FAA does not agree. In current practice, the airframe manufacturer determines how performance should be met. The choice of a means to indicate thrust is negotiated between the airplane manufacturer and the engine manufacturer. The factors which influence the final choice are substantial and may vary among airplane designs. These factors may not be known to the engine manufacturer at the time of engine type certification. Another commenter states that the need for an actual value of thrust is not obvious, whereas indication of a loss of thrust would satisfy the original proposal. The FAA agrees that the actual value of thrust is of little value to the pilot. Section 25.1305(d)(1) is revised to specify that the indicator indicate thrust, or a parameter related to thrust, to the pilot.

Proposal 8-51. No unfavorable comments were received on the proposal to change the reference in §25.1307(h) for fire extinguishers in connection with Proposal 8-41. Accordingly, the proposal is adopted without substantive change.

Proposal 8-52. Final action on Proposal 8-52 was taken in Airworthiness Review Program, Amendment No. 8: Cabin Safety and Flight Attendant Amendments (45 FR 7750; February 4, 1980).

Proposal 8-53. Several commenters point out a number of service deficiencies with proposed §25.1421 which defines the requirements for cargo compartment fire detection systems. They contend that the requirement for the detection system to actuate a warning within one minute of the start of a fire is too restrictive. One commenter cites the results of FAA tests which show average fire detection times to be from 1.75 to 5 minutes. The commenters also suggest that the tests necessary to show compliance with the warning requirements are not clearly defined. Finally, one commenter points out that fires in baggage containers and other enclosed containers can bum for a considerable time before detection is likely by fire detectors in the cargo compartment.

The FAA does not concur that the one-minute requirement is too restrictive. A survey of fire detection technology has indicated that the state of the art permits detection of a fire in less than one minute after inception. In addition, current standards do not define the test procedures necessary to show compliance with warning requirements. The new one-minute requirement is intended to improve the standards in this regard.

Proposal 8-44. For a discussion of proposed § 25.905(c), see the discussion under Proposal 8-103. The proposal to add a new § 25.905(c) is adopted without substantive change.

Proposals 8-45 and 8-96. The proposed amendments to §§ 25.939 and 33.65 are being deferred for consideration in a forthcoming notice of proposed rulemaking of the Aircraft Engine Regulatory Review Program.

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One commenter objects to revising § 25.1305(d)(1), stating that significant aerodynamic forces acting on the power-plant nacelle make the direct measurement of thrust impractical. The FAA agrees that such forces may be significant. This commenter further objects to the revision, stating that it is beyond the state of the art to prohibit a parameter from being used if the accuracy of the indication will be adversely affected by any engine malfunction or damage. The FAA agrees that precise values of thrust provided by a malfunctioning, damaged, or deteriorated engine are unnecessary, provided that any changes in thrust due to engine malfunction, damage, or deterioration are indicated to the pilot. The paragraph is revised to require that the indication must be based on the direct measurement of thrust or of parameters that are directly related to thrust.

Although concurring with §25.1305(d)(1), one commenter states that he would prefer to retain the existing requirements and delete the words "„ or to indicate a gas stream pressure that can be related to thrust,' '. The FAA does not agree. The change suggested by this commenter would eliminate the requirement for thrust information and would retain the requirement for change-of-thrust information only. It also would provide a lower level of safety than the adopted paragraph.

This commenter also states that § 25.1305(d)(1) should be complementary to a similar requirement in Part 33 of this chapter. The FAA does not agree. In current practice, the airframe manufacturer determines how performance should be met. The choice of a means to indicate thrust is negotiated between the airplane manufacturer and the engine manufacturer. The factors which influence the final choice are substantial and may vary among airplane designs. These factors may not be known to the engine manufacturer at the time of engine type certification. Another commenter states that the need for an actual value of thrust is not obvious, whereas indication of a loss of thrust would satisfy the original proposal. The FAA agrees that the actual value of thrust is of little value to the pilot. Section 25.1305(d)(1) is revised to specify that the indicator indicate thrust, or a parameter related to thrust, to the pilot.

Proposal 8-51. No unfavorable comments were received on the proposal to change the reference in §25.1307(h) for fire extinguishers in connection with Proposal 8-41. Accordingly, the proposal is adopted without substantive change.

Proposal 8-52. Final action on Proposal 8-52 was taken in Airworthiness Review Program, Amendment No. 8: Cabin Safety and Flight Attendant Amendments (45 FR 7750; February 4, 1980).

Proposal 8-53. Several commenters point out a number of service deficiencies with proposed §25.1421 which defines the requirements for cargo compartment fire detection systems. They contend that the requirement for the detection system to actuate a warning within one minute of the start of a fire is too restrictive. One commenter cites the results of FAA tests which show average fire detection times to be from 1.75 to 5 minutes. The commenters also suggest that the tests necessary to show compliance with the warning requirements are not clearly defined. Finally, one commenter points out that fires in baggage containers and other enclosed containers can bum for a considerable time before detection is likely by fire detectors in the cargo compartment.

The FAA does not concur that the one-minute requirement is too restrictive. A survey of fire detection technology has indicated that the state of the art permits detection of a fire in less than one minute after inception. In addition, current standards do not define the test procedures necessary to show compliance with warning requirements. The new one-minute requirement is intended to improve the standards in this regard.

shown to be adequate for the existing design. Therefore, it is acceptable to use a gust intensity value of 75 fps from 0 to 20,000 ft. altitude, and a linear reduction from 75 fps at 20,000 ft. to 30 fps at 80,000 ft., provided the new design is comparable to a similar design with extensive satisfactory service experience. These criteria, which have been under discussion between FAA and industry for over 10 years, are proposed as new rules rather than acceptable means of complying with existing rules. Paragraph (b)(3)(i) is revised accordingly. The commenter also recommends that paragraph (d)(l) be revised to require a gust intensity of U_{de}=60 fps on the interval 0 to 20,000 ft. altitude and be linearly decreased to 23 fps at 80,000 ft. altitude. The FAA disagrees. The gust intensities in paragraph (d)(l) are based on the distribution of gust intensity with altitude which were developed in the basic research for the development of continuous turbulence criteria and are, therefore, considered reasonable as a lower design envelope limit for mission analysis. A cost analysis was provided by the commenter to justify the lower gust intensities, but the FAA finds that this cost analysis was based on "design envelope analysis" alone. Paragraph (c), which is an alternative to paragraph (b), provides for a "mission analysis". Actual experience has shown that "mission analysis," which considers airplane operational characteristics, has been used in the past in lieu of the 85 fps intensities to prevent weight and cost penalties. Paragraphs (c) and (d) of Appendix G are adopted without substantive change.

A commenter recommends that paragraph (d) of Appendix G be revised to delete the reference to "fail-safe loads' ' since such loads are not provided in Appendix G. The FAA agrees. Paragraph (d) of Appendix G is revised accordingly.

A commenter recommends that proposed paragraph (e) of Appendix G be deleted since acceleration levels measured at the pilot station on current conventional aircraft can be established by flight demonstration much more easily and with less cost than by use of an expensive analysis considering response to continuous turbulence. Upon further review, the FAA has determined that it lacks sufficient information to specify the right combination of analysis and flight test to determine the acceleration levels at the pilot's station during continuous turbulence. Accordingly, proposed paragraph (e) of Appendix G is withdrawn. The current requirements related to operation in turbulence are adequate to determine the response at the pilot's station during continuous turbulence.

Proposal 8-62. For comments related to the proposal to add a new Appendix G to Part 25, see Proposal 8-25. Appendix G (redesignated Appendix H) to Part 25 is adopted with the changes discussed in Proposal 8-25.

Proposal 8-63. Final action on Proposal 8-63 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; October 3, 1978).

Amendment to §27.571. Because of the change to § 25.1529 adopted in this amendment, the reference to §27.1529(a)(2) in §§ 27.571 (b), (c), (d)(l), (d)(3), and (e) is no longer appropriate. The reference is changed to "§ A27.4 of Appendix A". This discrepancy was overlooked in Notice 75-31 (40 FR 29410; July 11, 1975). Since this amendment is clarifying in nature and does not impose a burden on the public, notice and public procedure are unnecessary and good cause exists for adopting this amendment.

Proposal 8-64. For comments related to the proposal to amend §27.1529, see Proposal 8-21.

Proposals 8-65 and 8-66. Final action on Proposals 8-65 and 8-66 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; October 30, 1978).

Proposal 8-67. For comments related to the proposal to add a new Appendix A to Part 27, see Proposal 8-25. Additional comments on this proposal, and on the proposal to add a new Appendix A to Part 29, are discussed here.

A commenter suggests that the wording of Appendix A be adjusted to take into account the differences between airplanes and rotorcraft. The FAA agrees. The appendix, as proposed, is generally equally applicable to airplanes and rotorcraft. However, several minor changes have been made to the appendix to provide for rotorcraft differences, primarily to cover rotors and differing fatigue standards.

A commenter objects to Appendix A, contending that: (1) The standards in current §§ 27.1529 and 29.1529 have been adequate in service, and (2) the proposal is excessive in scope and would create an undue burden. The FAA does not agree, having found that recommended maintenance procedures made available to operators/owners in the past were frequently inadequate in scope and content, providing no sound basis for maintaining the airworthiness of the rotorcraft. Appendix A, with the revisions and deletions discussed above and under Proposal 8-25, would not create an undue burden on the type certificate applicant.

shown to be adequate for the existing design. Therefore, it is acceptable to use a gust intensity value of 75 fps from 0 to 20,000 ft. altitude, and a linear reduction from 75 fps at 20,000 ft. to 30 fps at 80,000 ft., provided the new design is comparable to a similar design with extensive satisfactory service experience. These criteria, which have been under discussion between FAA and industry for over 10 years, are proposed as new rules rather than acceptable means of complying with existing rules. Paragraph (b)(3)(i) is revised accordingly. The commenter also recommends that paragraph (d)(l) be revised to require a gust intensity of U_{de}=60 fps on the interval 0 to 20,000 ft. altitude and be linearly decreased to 23 fps at 80,000 ft. altitude. The FAA disagrees. The gust intensities in paragraph (d)(l) are based on the distribution of gust intensity with altitude which were developed in the basic research for the development of continuous turbulence criteria and are, therefore, considered reasonable as a lower design envelope limit for mission analysis. A cost analysis was provided by the commenter to justify the lower gust intensities, but the FAA finds that this cost analysis was based on "design envelope analysis" alone. Paragraph (c), which is an alternative to paragraph (b), provides for a "mission analysis". Actual experience has shown that "mission analysis," which considers airplane operational characteristics, has been used in the past in lieu of the 85 fps intensities to prevent weight and cost penalties. Paragraphs (c) and (d) of Appendix G are adopted without substantive change.

A commenter recommends that paragraph (d) of Appendix G be revised to delete the reference to "fail-safe loads' ' since such loads are not provided in Appendix G. The FAA agrees. Paragraph (d) of Appendix G is revised accordingly.

A commenter recommends that proposed paragraph (e) of Appendix G be deleted since acceleration levels measured at the pilot station on current conventional aircraft can be established by flight demonstration much more easily and with less cost than by use of an expensive analysis considering response to continuous turbulence. Upon further review, the FAA has determined that it lacks sufficient information to specify the right combination of analysis and flight test to determine the acceleration levels at the pilot's station during continuous turbulence. Accordingly, proposed paragraph (e) of Appendix G is withdrawn. The current requirements related to operation in turbulence are adequate to determine the response at the pilot's station during continuous turbulence.

Proposal 8-62. For comments related to the proposal to add a new Appendix G to Part 25, see Proposal 8-25. Appendix G (redesignated Appendix H) to Part 25 is adopted with the changes discussed in Proposal 8-25.

Proposal 8-63. Final action on Proposal 8-63 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; October 3, 1978).

Amendment to §27.571. Because of the change to § 25.1529 adopted in this amendment, the reference to §27.1529(a)(2) in §§ 27.571 (b), (c), (d)(l), (d)(3), and (e) is no longer appropriate. The reference is changed to "§ A27.4 of Appendix A". This discrepancy was overlooked in Notice 75-31 (40 FR 29410; July 11, 1975). Since this amendment is clarifying in nature and does not impose a burden on the public, notice and public procedure are unnecessary and good cause exists for adopting this amendment.

Proposal 8-64. For comments related to the proposal to amend §27.1529, see Proposal 8-21.

Proposals 8-65 and 8-66. Final action on Proposals 8-65 and 8-66 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; October 30, 1978).

Proposal 8-67. For comments related to the proposal to add a new Appendix A to Part 27, see Proposal 8-25. Additional comments on this proposal, and on the proposal to add a new Appendix A to Part 29, are discussed here.

A commenter suggests that the wording of Appendix A be adjusted to take into account the differences between airplanes and rotorcraft. The FAA agrees. The appendix, as proposed, is generally equally applicable to airplanes and rotorcraft. However, several minor changes have been made to the appendix to provide for rotorcraft differences, primarily to cover rotors and differing fatigue standards.

A commenter objects to Appendix A, contending that: (1) The standards in current §§ 27.1529 and 29.1529 have been adequate in service, and (2) the proposal is excessive in scope and would create an undue burden. The FAA does not agree, having found that recommended maintenance procedures made available to operators/owners in the past were frequently inadequate in scope and content, providing no sound basis for maintaining the airworthiness of the rotorcraft. Appendix A, with the revisions and deletions discussed above and under Proposal 8-25, would not create an undue burden on the type certificate applicant.

applicable combination of those factors is sufficient. This is also the language used in corresponding sections of other aircraft airworthiness regulations. Section 31.71, as adopted, is revised accordingly.

Proposal 8-88. No unfavorable comments were received on the proposal to amend § 31.81 to detail operating limitations and information. The FAA notes, however, that proposed § 31.81(b) is not clear as to which "operating limitations and other information necessary for safe operation" must be furnished. The FAA's intent, as stated in the explanation, is to require that the information established under § 31.81(a) be furnished. Section 31.81(b) is revised accordingly. Section 31.81(a) is adopted without substantive change.

Proposal 8-89. A commenter is concerned that proposed §31.82 might require balloon manufacturers to prepare two overlapping maintenance documents-the maintenance manual currently supplied to operators/owners, and the proposed Instructions for Continued Airworthiness. The FAA notes that under §§ 31.82 and 21.50(b), balloon manufacturers would be required to prepare and furnish only the Instructions for Continued Airworthiness.

The FAA notes further (as discussed under Proposal 8-21) that the Instructions for Continued Airworthiness need not be finalized until delivery of the first balloon, while § 31.82, as proposed, could be interpreted to require that they be finalized before type certification. This point is clarified in §31.82, as adopted, consistent with the corresponding requirement in Parts 23, 25, 27, and 29.

Proposal 8-90. No unfavorable comments were received on the proposal to amend § 31.85(b)(1). However, a commenter questions whether percentage figures on the required fuel quantity gauge would be acceptable. The FAA has determined that, in the particular case of balloons (for which the fuel quantity information is to an extent less important to safety than for other classes of aircraft), calibration of the fuel quantity gauge in percent of fuel cell capacity is an acceptable means of complying with the last sentence of § 31.85(b)(1). Section 31.85(b)(1), as adopted, is revised to make this clear.

Proposal 8-91. No adverse comments were received on the proposal to add a new Appendix A to Part 31. However, comments received on the proposals to add a similar appendix to Parts 23, 25, 27, and 29 (Proposal 8-25), were equally valid with respect to this proposal. Accordingly, Appendix A to Part 31, as adopted, is revised in substance as applicable.

Regarding the proposals to require generalized repair data in the Instructions for Continued Airworthiness, it is more appropriate, as well as necessary and practicable, to include specific instructions for repair of the key elements of a balloon-the balloon envelope and its basket or trapeze. This information is incorporated in paragraph A31.3(i) as revised.

Proposal 8-92. A commenter objects to §33.4 insofar as it would require completion of the Instructions for Continued Airworthiness before the type certificate is issued, contending that a significant portion of the data and other material called for is typically not compiled until 6 months or longer after type certification. The commenter suggests that manufacturers be allowed to prepare and make available the Instructions for Continued Airworthiness before the first aircraft equipped with the subject engine is put into service, which, it claims, is the earliest such instructions would be needed. Requiring the engine manufacturer to complete the Instructions for Continued Airworthiness before the type certificate is issued would constitute an unnecessary burden. However, the FAA considers that they must be made available, and furnished, upon delivery of the first engine on an aircraft or issuance of a standard certificate of airworthiness for the aircraft, whichever occurs later. This would be consistent with corresponding requirements proposed for other products. See Proposals 8-5 and 8-21. Section 33.4 is revised and adopted accordingly.

Proposal 8-93. A commenter observes that §33.5 requires that the instruction manual for installing and operating the engine be "approved,' ' whereas proposed § 33.4 requires that the Instructions for Continued Airworthiness be ' 'acceptable to the Administrator, ' ' and recommends that the latter term be used for consistency. The FAA notes that the term "acceptable to the Administrator" is widely used in Part 43 in connection with maintenance requirements, whereas the term "approved" is more frequently used in FAR Parts containing installation and operating requirements. Considering the FAR as a whole, the FAA does not agree that such consistency is essential. Accordingly, §33.5 is adopted as proposed.

Proposal 8-94. Several commenters object to proposed §§ 33.6(e) and (f), and to proposed §§ 23.1521(a) and 25.1521(a) (Proposals 8-20 and 8-56, respectively) on the grounds that the use of rated takeoff power or thrust for 10 minutes with one engine inoperative should not be limited to "the extent that the utilization is necessary for the airplane to avoid, without necessitating turning maneuvers, obstacles beneath the flight path intended for the airplane prior to the loss of the engine." In light of these comments and after further review, the FAA concludes that these proposals are premature and they are withdrawn.

applicable combination of those factors is sufficient. This is also the language used in corresponding sections of other aircraft airworthiness regulations. Section 31.71, as adopted, is revised accordingly.

Proposal 8-88. No unfavorable comments were received on the proposal to amend § 31.81 to detail operating limitations and information. The FAA notes, however, that proposed § 31.81(b) is not clear as to which "operating limitations and other information necessary for safe operation" must be furnished. The FAA's intent, as stated in the explanation, is to require that the information established under § 31.81(a) be furnished. Section 31.81(b) is revised accordingly. Section 31.81(a) is adopted without substantive change.

Proposal 8-89. A commenter is concerned that proposed §31.82 might require balloon manufacturers to prepare two overlapping maintenance documents-the maintenance manual currently supplied to operators/owners, and the proposed Instructions for Continued Airworthiness. The FAA notes that under §§ 31.82 and 21.50(b), balloon manufacturers would be required to prepare and furnish only the Instructions for Continued Airworthiness.

The FAA notes further (as discussed under Proposal 8-21) that the Instructions for Continued Airworthiness need not be finalized until delivery of the first balloon, while § 31.82, as proposed, could be interpreted to require that they be finalized before type certification. This point is clarified in §31.82, as adopted, consistent with the corresponding requirement in Parts 23, 25, 27, and 29.

Proposal 8-90. No unfavorable comments were received on the proposal to amend § 31.85(b)(1). However, a commenter questions whether percentage figures on the required fuel quantity gauge would be acceptable. The FAA has determined that, in the particular case of balloons (for which the fuel quantity information is to an extent less important to safety than for other classes of aircraft), calibration of the fuel quantity gauge in percent of fuel cell capacity is an acceptable means of complying with the last sentence of § 31.85(b)(1). Section 31.85(b)(1), as adopted, is revised to make this clear.

Proposal 8-91. No adverse comments were received on the proposal to add a new Appendix A to Part 31. However, comments received on the proposals to add a similar appendix to Parts 23, 25, 27, and 29 (Proposal 8-25), were equally valid with respect to this proposal. Accordingly, Appendix A to Part 31, as adopted, is revised in substance as applicable.

Regarding the proposals to require generalized repair data in the Instructions for Continued Airworthiness, it is more appropriate, as well as necessary and practicable, to include specific instructions for repair of the key elements of a balloon-the balloon envelope and its basket or trapeze. This information is incorporated in paragraph A31.3(i) as revised.

Proposal 8-92. A commenter objects to §33.4 insofar as it would require completion of the Instructions for Continued Airworthiness before the type certificate is issued, contending that a significant portion of the data and other material called for is typically not compiled until 6 months or longer after type certification. The commenter suggests that manufacturers be allowed to prepare and make available the Instructions for Continued Airworthiness before the first aircraft equipped with the subject engine is put into service, which, it claims, is the earliest such instructions would be needed. Requiring the engine manufacturer to complete the Instructions for Continued Airworthiness before the type certificate is issued would constitute an unnecessary burden. However, the FAA considers that they must be made available, and furnished, upon delivery of the first engine on an aircraft or issuance of a standard certificate of airworthiness for the aircraft, whichever occurs later. This would be consistent with corresponding requirements proposed for other products. See Proposals 8-5 and 8-21. Section 33.4 is revised and adopted accordingly.

Proposal 8-93. A commenter observes that §33.5 requires that the instruction manual for installing and operating the engine be "approved,' ' whereas proposed § 33.4 requires that the Instructions for Continued Airworthiness be ' 'acceptable to the Administrator, ' ' and recommends that the latter term be used for consistency. The FAA notes that the term "acceptable to the Administrator" is widely used in Part 43 in connection with maintenance requirements, whereas the term "approved" is more frequently used in FAR Parts containing installation and operating requirements. Considering the FAR as a whole, the FAA does not agree that such consistency is essential. Accordingly, §33.5 is adopted as proposed.

Proposal 8-94. Several commenters object to proposed §§ 33.6(e) and (f), and to proposed §§ 23.1521(a) and 25.1521(a) (Proposals 8-20 and 8-56, respectively) on the grounds that the use of rated takeoff power or thrust for 10 minutes with one engine inoperative should not be limited to "the extent that the utilization is necessary for the airplane to avoid, without necessitating turning maneuvers, obstacles beneath the flight path intended for the airplane prior to the loss of the engine." In light of these comments and after further review, the FAA concludes that these proposals are premature and they are withdrawn.

should be considered. The FAA does not agree. Load patterns which are reasonably foreseeable are critical and should be investigated even if they are not normal.

The same commenter also indicates that the third sentence should be revised to eliminate the term "reduction factors," since reduction factors are identified with only one particular method of presentation. The FAA agrees and the section is revised accordingly. This commenter finally states that the explanation implies that manufacturers have not taken permissible damage and material variation into account. This implication is not intended. It is the FAA's view that the fatigue evaluation should consider the occurrence of typical service damage and variation in material properties and the rule would provide for such an evaluation.

Another commenter suggests that the section be revised by adding certain technical requirements that are related to infinite component life. It is not necessary to specify requirements concerning infinite component life, since they are considered a normal part of propeller fatigue testing.

Section 35.37 is adopted as revised.

Proposal 8-103. A commenter objects to the proposal to add a new §35.42 to define durability requirements for propeller blade pitch control system components, stating that the term "bench tests" in §§ 35.42(a) and (b) is too descriptive and restrictive. The FAA agrees that a reference to "bench tests" may be too restrictive. Other test methods may be equally acceptable in providing the necessary data. Accordingly, §§ 35.42(a) and (b) are revised to eliminate the specific reference to "bench."

The commenter also suggests that the words "in frequency and amplitude" be eliminated from § 35.42(a) since the words "cyclic testing" are fully descriptive. The FAA believes that these words are needed to prescribe key elements in the required test.

The commenter further suggests that the proposed testing to the equivalent of 1,000 hours of propeller operation is too restrictive in the case of a propeller with an overhaul period of less than 1,000 hours. The FAA considers the specific testing to be the minimum necessary to provide an acceptable safety level in service. The rule does not, however, prevent the selection of overhaul intervals of less than 1,000 hours.

Finally, the commenter suggests that the rule should permit an alternate of acceptance based upon service experience. The FAA recognizes that service experience can provide a statistical basis for determining component reliability. Its applicability, however, may vary according to such considerations as type of operation, the nature of the article under consideration, the degree of similarity between the reference article and the certification article, and the completeness of service records. Since it is dependent on such a variety of factors, the FAA does not agree that a specific alternative based on service experience should be included.

The proposal to add a new § 35.42, therefore, is adopted with the change discussed below. No adverse comments were received on the related proposed revisions to §§ 23.905, 25.905, and 33.19 to add the reference to new § 35.42, and the revisions are adopted.

Proposal 8-104. For comments related to the proposal to add a new Appendix A to Part 35, see Proposals 8-25 and 8-97.

A commenter objects to proposed § A35.1(c) of the appendix because the propeller owner (aircraft operator) would be wastefully provided with instructions and data that the propeller owner has no authority to use. The FAA does not agree. The Instructions for Continued Airworthiness must be furnished to the aircraft owner/operator who is the person responsible for maintaining the aircraft (including the propeller). The owner/operator may not be authorized to maintain the propeller, but the owner/operator can place the instructions in the hands of persons who are authorized.

The new Appendix A to Part 35, as adopted, is revised in accordance with comments discussed in Proposal 8-97.

Proposal 8-105. The proposed revision of §43.9(a)(4) is being deferred for consideration in a forthcoming notice of proposed rulemaking of the Operations Review Program.

Proposal 8-106. A commenter representing a number of scheduled air carriers is concerned that the use of maintenance manuals and continued airworthiness programs developed under current § 121.133 and Subpart L of Part 121 (generally via Maintenance Review Board procedures), or under similar provisions of Parts 127 and 135, might not be acceptable as "other methods, techniques, and practices" under the terms of proposed § 43.13(a). This commenter suggests that language be added to proposed § 43.13(a) to make this clear. The FAA does not agree. The proposed language states that the use of such manuals and continued airworthiness programs is acceptable.

should be considered. The FAA does not agree. Load patterns which are reasonably foreseeable are critical and should be investigated even if they are not normal.

The same commenter also indicates that the third sentence should be revised to eliminate the term "reduction factors," since reduction factors are identified with only one particular method of presentation. The FAA agrees and the section is revised accordingly. This commenter finally states that the explanation implies that manufacturers have not taken permissible damage and material variation into account. This implication is not intended. It is the FAA's view that the fatigue evaluation should consider the occurrence of typical service damage and variation in material properties and the rule would provide for such an evaluation.

Another commenter suggests that the section be revised by adding certain technical requirements that are related to infinite component life. It is not necessary to specify requirements concerning infinite component life, since they are considered a normal part of propeller fatigue testing.

Section 35.37 is adopted as revised.

Proposal 8-103. A commenter objects to the proposal to add a new §35.42 to define durability requirements for propeller blade pitch control system components, stating that the term "bench tests" in §§ 35.42(a) and (b) is too descriptive and restrictive. The FAA agrees that a reference to "bench tests" may be too restrictive. Other test methods may be equally acceptable in providing the necessary data. Accordingly, §§ 35.42(a) and (b) are revised to eliminate the specific reference to "bench."

The commenter also suggests that the words "in frequency and amplitude" be eliminated from § 35.42(a) since the words "cyclic testing" are fully descriptive. The FAA believes that these words are needed to prescribe key elements in the required test.

The commenter further suggests that the proposed testing to the equivalent of 1,000 hours of propeller operation is too restrictive in the case of a propeller with an overhaul period of less than 1,000 hours. The FAA considers the specific testing to be the minimum necessary to provide an acceptable safety level in service. The rule does not, however, prevent the selection of overhaul intervals of less than 1,000 hours.

Finally, the commenter suggests that the rule should permit an alternate of acceptance based upon service experience. The FAA recognizes that service experience can provide a statistical basis for determining component reliability. Its applicability, however, may vary according to such considerations as type of operation, the nature of the article under consideration, the degree of similarity between the reference article and the certification article, and the completeness of service records. Since it is dependent on such a variety of factors, the FAA does not agree that a specific alternative based on service experience should be included.

The proposal to add a new § 35.42, therefore, is adopted with the change discussed below. No adverse comments were received on the related proposed revisions to §§ 23.905, 25.905, and 33.19 to add the reference to new § 35.42, and the revisions are adopted.

Proposal 8-104. For comments related to the proposal to add a new Appendix A to Part 35, see Proposals 8-25 and 8-97.

A commenter objects to proposed § A35.1(c) of the appendix because the propeller owner (aircraft operator) would be wastefully provided with instructions and data that the propeller owner has no authority to use. The FAA does not agree. The Instructions for Continued Airworthiness must be furnished to the aircraft owner/operator who is the person responsible for maintaining the aircraft (including the propeller). The owner/operator may not be authorized to maintain the propeller, but the owner/operator can place the instructions in the hands of persons who are authorized.

The new Appendix A to Part 35, as adopted, is revised in accordance with comments discussed in Proposal 8-97.

Proposal 8-105. The proposed revision of §43.9(a)(4) is being deferred for consideration in a forthcoming notice of proposed rulemaking of the Operations Review Program.

Proposal 8-106. A commenter representing a number of scheduled air carriers is concerned that the use of maintenance manuals and continued airworthiness programs developed under current § 121.133 and Subpart L of Part 121 (generally via Maintenance Review Board procedures), or under similar provisions of Parts 127 and 135, might not be acceptable as "other methods, techniques, and practices" under the terms of proposed § 43.13(a). This commenter suggests that language be added to proposed § 43.13(a) to make this clear. The FAA does not agree. The proposed language states that the use of such manuals and continued airworthiness programs is acceptable.

should be considered. The FAA does not agree. Load patterns which are reasonably foreseeable are critical and should be investigated even if they are not normal.

The same commenter also indicates that the third sentence should be revised to eliminate the term "reduction factors," since reduction factors are identified with only one particular method of presentation. The FAA agrees and the section is revised accordingly. This commenter finally states that the explanation implies that manufacturers have not taken permissible damage and material variation into account. This implication is not intended. It is the FAA's view that the fatigue evaluation should consider the occurrence of typical service damage and variation in material properties and the rule would provide for such an evaluation.

Another commenter suggests that the section be revised by adding certain technical requirements that are related to infinite component life. It is not necessary to specify requirements concerning infinite component life, since they are considered a normal part of propeller fatigue testing.

Section 35.37 is adopted as revised.

Proposal 8-103. A commenter objects to the proposal to add a new §35.42 to define durability requirements for propeller blade pitch control system components, stating that the term "bench tests" in §§ 35.42(a) and (b) is too descriptive and restrictive. The FAA agrees that a reference to "bench tests" may be too restrictive. Other test methods may be equally acceptable in providing the necessary data. Accordingly, §§ 35.42(a) and (b) are revised to eliminate the specific reference to "bench."

The commenter also suggests that the words "in frequency and amplitude" be eliminated from § 35.42(a) since the words "cyclic testing" are fully descriptive. The FAA believes that these words are needed to prescribe key elements in the required test.

The commenter further suggests that the proposed testing to the equivalent of 1,000 hours of propeller operation is too restrictive in the case of a propeller with an overhaul period of less than 1,000 hours. The FAA considers the specific testing to be the minimum necessary to provide an acceptable safety level in service. The rule does not, however, prevent the selection of overhaul intervals of less than 1,000 hours.

Finally, the commenter suggests that the rule should permit an alternate of acceptance based upon service experience. The FAA recognizes that service experience can provide a statistical basis for determining component reliability. Its applicability, however, may vary according to such considerations as type of operation, the nature of the article under consideration, the degree of similarity between the reference article and the certification article, and the completeness of service records. Since it is dependent on such a variety of factors, the FAA does not agree that a specific alternative based on service experience should be included.

The proposal to add a new § 35.42, therefore, is adopted with the change discussed below. No adverse comments were received on the related proposed revisions to §§ 23.905, 25.905, and 33.19 to add the reference to new § 35.42, and the revisions are adopted.

Proposal 8-104. For comments related to the proposal to add a new Appendix A to Part 35, see Proposals 8-25 and 8-97.

A commenter objects to proposed § A35.1(c) of the appendix because the propeller owner (aircraft operator) would be wastefully provided with instructions and data that the propeller owner has no authority to use. The FAA does not agree. The Instructions for Continued Airworthiness must be furnished to the aircraft owner/operator who is the person responsible for maintaining the aircraft (including the propeller). The owner/operator may not be authorized to maintain the propeller, but the owner/operator can place the instructions in the hands of persons who are authorized.

The new Appendix A to Part 35, as adopted, is revised in accordance with comments discussed in Proposal 8-97.

Proposal 8-105. The proposed revision of §43.9(a)(4) is being deferred for consideration in a forthcoming notice of proposed rulemaking of the Operations Review Program.

Proposal 8-106. A commenter representing a number of scheduled air carriers is concerned that the use of maintenance manuals and continued airworthiness programs developed under current § 121.133 and Subpart L of Part 121 (generally via Maintenance Review Board procedures), or under similar provisions of Parts 127 and 135, might not be acceptable as "other methods, techniques, and practices" under the terms of proposed § 43.13(a). This commenter suggests that language be added to proposed § 43.13(a) to make this clear. The FAA does not agree. The proposed language states that the use of such manuals and continued airworthiness programs is acceptable.

for certain operations. These changes result from comments received from the general public. and aviation industry in response to a request for specific comments to help identify substantive areas needing review.

EFFECTIVE DATE: This amendment becomes effective on August 18, 1990, except that § 91.203(a)(2) becomes effective September 18, 1989, and remains numbered as § 91.27(a)(2) until August 18, 1990.

FOR FURTHER INFORMATION CONTACT: William T. Cook (202) 267-3840 or Edna French (202) 267-8150, Project Development Branch (AFS-850), General Aviation and Commercial Division, Office of Flight Standards, Federal Aviation Administration, 800 Independence Avenue SW., Washington, DC 20591.

SUPPLEMENTARY INFORMATION:

Background

On August 9, 1978, the Aircraft Owners and Pilots Association (AOPA) petitioned the Federal Aviation Administration (FAA) to revise Part 91 of the Federal Aviation Regulations (FAR) to make the regulations simpler and more comprehensible. In response to this petition, on January 11, 1979, the FAA issued an Advance Notice of Proposed Rulemaking (ANPRM) No. 79-2 (44 FR 4572; January 22, 1979) consisting of a verbatim publication of AOPA's proposal.

The FAA received 106 comments in response to the ANPRM. An overwhelming majority of the commenters supported the intent of the proposal to reorganize Part 91. However, there were numerous problem areas identified by the commenters relating to the proposed changes that were considered substantive.

On November 18, 1980, the FAA formed a Part 91 Working Group to analyze the AOPA proposal and comments received on the ANPRM. It was determined that certain technical and administrative problems existed and that it was not feasible to undertake a substantive revision of Part 91 at that time. Subsequently, AOPA withdrew its petition. However, review of AOPA's proposal to reorganize and renumber Part 91 revealed that many of the changes had merit and could be implemented. The FAA Part 91 Working Group concluded that the reorganization and renumbering of Part 91 would be the first step to improve the regulation and make it more understandable and easier to use. Consequently, the FAA published NPRM No. 79-2A (46 FR 45256; September 10, 1981), which proposed to reorganize and realign the general operating and flight rules to make them more understandable and easier to use. Other proposals were made to delete redundancies and obsolete compliance dates and to make other minor changes.

Notice No. 79-2A did not contain any substantive changes; however, it did inform the public that the FAA considered that notice to be the first step in a regulatory review of Part 91 consistent with the objective of Executive Order 12291. With this in mind, the FAA invited additional specific comments to help identify substantive areas to be reviewed and possibly included in subsequent proposals concerning Part 91. The notice further stated that the FAA would not take final action concerning the reorganization until substantive changes were proposed and the public had been given an opportunity to comment on those proposals.

The FAA published Notice No. 79-2B (46 FR 60461; December 10, 1981) to extend the comment period for Notice No. 79-2A by 120 days. That notice was issued in response to a petition from the National Business Aircraft Association to allow additional time for commenters to prepare substantive comments.

The FAA received 69 comments in response to Notice No. 79-2A. The majority of these comments favored the proposal and were discussed in Notice No. 79-2C (50 FR 11292; March 20, 1985).

Notice 79-2C proposed four substantive changes in addition to the numerous changes made to reorganize and clarify existing rules. Two of these changes were made in response to comments received from the public. These changes are as follows:

(1) Section 91.117—Allows reciprocating-powered aircraft to be operated at 200 knots in an airport traffic area;

(2) Section 91.135—Allows operators desiring authorizations to deviate from positive control area and route segment requirements to utilize a 48-hour oral notification system;

(3) Section 91.409—Allows operators of turbine-powered rotorcraft to use an alternate inspection program, such as an FAA-approved inspection program; and

for certain operations. These changes result from comments received from the general public. and aviation industry in response to a request for specific comments to help identify substantive areas needing review.

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by its terms, is a form of registration certificate, the aircraft may be operated in international air navigation consistent with Article 29 of the Convention [Convention on International Civil Aviation (61 Stat. 1180; T.I.A.S. 1591; 15 U.N.T.S. 295)]. The Registry will telex this copy within a matter of days-often within 48 hours- t o be kept in the aircraft until the original Certificate of Aircraft Registration (AC Form 8050–3) is forwarded to the registered owner.

Accordingly, the FAA has determined that the rule should be amended as proposed, and consistent with the Chief Counsel's legal opinion, to provide explicitly that operations of aircraft outside the United States for which an application for registration has been submitted but certificate of registration has not been issued are not authorized under the Federal Aviation Regulations.

Several judicial decisions have defined the "shore" as including tidal flats. In some parts of the United States, these tidal flats can extend for several miles and, because of the extreme tides prevalent in these areas, the land may be submerged under as much as 25 to 35 feet of water during periods of high tide. The intent of the rule is to require operators carrying passengers for hire over these areas to equip their aircraft with the necessary flotation gear and pyrotechnic devices. Therefore, "shore," when it is used in §§ 91.205, 91.509, and 91.5 11, is defined to exclude land areas, such as tidal flats, which are intermittently under water.

An incorrect reference to "§91.169" was used in proposed § 91.409(e), which has been corrected to "§91.409" in the final rule.

It was pointed out by several commenters that the word "stop" in § 9 1.605(c)(2) was inadvertently included in the proposal and should be deleted. The commenters are correct, and the final rule has been amended accordingly. Also, the word "if" following the word "distance" in that same sentence has been corrected to read "is. "

In addition to the specific changes discussed above, minor changes have been made in the wording of the regulations proposed in Notice No. 72–2C. In § 91.3(b), the word "in-flight" has been inserted to clarify that the deviation authority of § 91.3 applies only to in-flight emergencies which affect the safe completion of the flight.

The original intent of § 91.3 was to allow the pilot in command to deviate from certain regulations in the event of an in-flight emergency. Over time, regulations involving non-flight items were inserted into Subparts A and B, while flight-related regulations were inserted in other Subparts. Therefore, the word "in-flight" is being added to return the language to its original intent.

Other changes are nonsubstantive in nature. Except for such minor revisions, those parts of the proposal for which there were no comments are adopted as proposed. Finally, all other sections of Part 91 remain unchanged except for renumbering (see the cross-reference lists below).

Several amendments to Part 91 adopted since Notice No. 79-2C were published are reflected in the final rule. Where reference to other sections of this part were set forth in an amendment, the references have been changed to reflect the appropriate sections as used in the final rule. Those required changes published in the Federal Register prior to June 19, 1989, are discussed below.

Amendment No. 91–188, (50 FR 15380; April 17, 1985) amended current §91.11, which governs the use of alcohol or drugs by any crewmember performing duty during the operation of an aircraft. This amendment took effect on June 17, 1985. Subsequently, Amendment No. 91–194 (51 FR 1229; January 9, 1986) amended § 9 1.11 (c) to impose a requirement for a crewmember to furnish the results of any test that indicates percentage by weight of alcohol in a crewmember's blood. This amendment took effect on April 9, 1986. Proposed § 91.17 has been revised accordingly.

Amendment No. 91–189 (50 FR 31588; August 5, 1985) removed references to "expect approach clearance time '' in §91.127. This amendment took effect on September 4, 1985. Section 91.185 reflects this amendment.

Amendment No. 91–190 (50 FR 45602; November 1, 1985) added a new paragraph (c) to current § 91.24. This amendment took effect on December 2, 1985. This new paragraph required all aircraft equipped with an operable radar beacon transponder be turned on while airborne in controlled airspace. Subsequently, §91.24(c) was amended by Amendment No. 91–203 (53 FR 23374; June 21, 1988). Proposed §91.215(c) has been redesignated as paragraph (d) and the changes brought about by Amendment Nos. 91–190 and 91–203 have been incorporated into revised § 91.215(c).

Amendment No. 91–191 (50 FR 46877; November 13, 1985) amended current §91.14 (proposed § 91.107) by revising the title and the section to include reference to shoulder harnesses. This amendment took effect on December 12, 1985. Section 91.107 has been revised accordingly. Amendment No. 9 1–

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Amendment No. 91–202, (52 FR 34102; September 9, 1987 and 52 FR 35234; September 18, 1987) amended current § 91.27 on civil aircraft certification requirements by adding a new paragraph (c) to require that a copy of the form which authorized the alteration of an aircraft with fuel tanks within the passenger or a baggage compartment be kept on board the modified aircraft. This new rule now appears as §91.203(c). Current § 91.173 on maintenance records was revised by requiring that such records be made available to the Administrator or an authorized representative of the National Transportation Safety Board and when such a fuel tank is installed as set forth in § 91.35 as amended pursuant to Part 43, a copy of the FAA Form 337 be kept on board the modified aircraft. This new rule appears as §91.417(b) and (c). This amendment took effect on December 8, 1987.

Amendment No. 91–203, (53 FR 23374; June 21, 1988, 53 FR 25050; July 1, 1988, and 53 FR 26592; July 14, 1988) amended or revised §91.24 (ATC transponder and altitude reporting equipment and use), 91.88 (Airport radar service areas), and 91.90 (Terminal control areas), and by adding a new Appendix D entitled "Airports/Locations Where the Transponder Requirements of § 91.24(b)(5)(ii) Apply," regarding use of transponders with automatic altitude reporting. This amendment took effect on July 21, 1988. Amendment No. 91–205 (53 FR 40323; October 14, 1988) revised §91.90 in its entirety effective January 12, 1989. Amendment No. 91–209 (54 FR 24883; June 9, 1989) amended §91.90 by delaying the effective date of the section for helicopter operations. These rules now appear in this revision as §§91.215, 91.130, 91.131, and new Appendix D to Part 91, respectively.

Amendment No. 91–204, (53 FR 26145; July 11, 1988) amended current § 91.35 on flight recorders and cockpit voice recorders to require digital flight recorders and voice recorders to be installed on selected aircraft operated in general aviation. The specifications for such recorders are set forth in a new Appendix E to Part 91 for airplanes and in a new Appendix F to Part 91 for helicopters. The amendment is reflected as § 91.609(b), (c), (d), and (e), and new Appendixes E and F to Part 91. This amendment becomes effective on October 11, 1991.

Amendment No. 91–205 (53 FR 40323; October 14, 1988) revised the classification and pilot and equipment requirements for conducting operations in terminal control areas (TCA's) by amending § 91.90 to establish a single-class TCA; require the pilot-in-command of a civil aircraft to hold at least a private pilot certificate, except for a student pilot who has received certain documented training; and, to eliminate the helicopter exception from the minimum equipment requirement. The amendment was effective on January 12, 1989. Subsequently, Amendment No. 91–209 (54 FR 24883; June 9, 1989) amended § 91.90(c)(1) by delaying the application of the section for helicopter operations for one year. Revised § 91.131 covers these amendments.

Amendment No. 91–206 (53 FR 50195; December 13, 1988) amended §91.30 to permit rotorcraft, nonturbine-powered airplanes, gliders, and lighter-than-air aircraft, for which an approved Master Minimum Equipment List has not been developed, to be operated with inoperative instruments and equipment not essential for the safe operation of the aircraft. The amendment also permits general. aviation operators of small rotorcraft, nonturbine-powered small airplanes, gliders, and lighter-than-air aircraft for which a Master Minimum Equipment List has been developed, the option of operating under the minimum equipment list concept, or under other conditions as set forth in the amendment. Amendment No. 91–206 also amended § 91.165 to require that any inoperative instrument or item of equipment permitted to be inoperative under the new amended §91.30 to be repaired, replaced, removed, or inspected at the next required inspection for the aircraft. These amendments became effective on December 13, 1988, and appear as §§ 91.213 and 91.405 of this revision to Part 91.

Amendment No. 91–207 (54 FR 265; January 4, 1989) amended §§91.11 and 91.61 to extend the controlled airspace and the applicability of certain air traffic rules to coincide with presidential action to extend the territorial sea of the United States for international purposes, from 3 to 12 nautical miles from the U.S. coast. This amendment became effective on December 27, 1988. These amended rules now appear as §§91.11 and 91.101.

Amendment No. 91–208 (54 FR 950; January 10, 1989) added a new §91.26 to require that any traffic alert and collision avoidance system installed in a U.S. registered civil aircraft must be approved by the Administrator, and if installed, must be on and operating during the aircraft's operation. The amendment became effective on February 9, 1989. The amendment appears herein as §§ 91.221.

Amendment No. 91–209 (54 FR 24883: June 9, 1989) delays the effective date of certain navigational equipment requirements of helicopter operations in a Terminal Control Area (TCA) by the amendment of § 91.90(c)(1). The amendment became effective on June 6, 1989. Section 91.131 covers this amendment.

Amendment No. 91–210 (54 FR 25682; June 16, 1989), effective June 16, 1989, amended § 91.24(a) to allow certain aircraft operators to install non-Mode S transponders in aircraft until July 1, 1992,

Amendment No. 91–202, (52 FR 34102; September 9, 1987 and 52 FR 35234; September 18, 1987) amended current § 91.27 on civil aircraft certification requirements by adding a new paragraph (c) to require that a copy of the form which authorized the alteration of an aircraft with fuel tanks within the passenger or a baggage compartment be kept on board the modified aircraft. This new rule now appears as §91.203(c). Current § 91.173 on maintenance records was revised by requiring that such records be made available to the Administrator or an authorized representative of the National Transportation Safety Board and when such a fuel tank is installed as set forth in § 91.35 as amended pursuant to Part 43, a copy of the FAA Form 337 be kept on board the modified aircraft. This new rule appears as §91.417(b) and (c). This amendment took effect on December 8, 1987.

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Amendment No. 91–206 (53 FR 50195; December 13, 1988) amended §91.30 to permit rotorcraft, nonturbine-powered airplanes, gliders, and lighter-than-air aircraft, for which an approved Master Minimum Equipment List has not been developed, to be operated with inoperative instruments and equipment not essential for the safe operation of the aircraft. The amendment also permits general. aviation operators of small rotorcraft, nonturbine-powered small airplanes, gliders, and lighter-than-air aircraft for which a Master Minimum Equipment List has been developed, the option of operating under the minimum equipment list concept, or under other conditions as set forth in the amendment. Amendment No. 91–206 also amended § 91.165 to require that any inoperative instrument or item of equipment permitted to be inoperative under the new amended §91.30 to be repaired, replaced, removed, or inspected at the next required inspection for the aircraft. These amendments became effective on December 13, 1988, and appear as §§ 91.213 and 91.405 of this revision to Part 91.

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Amendment No. 91–210 (54 FR 25682; June 16, 1989), effective June 16, 1989, amended § 91.24(a) to allow certain aircraft operators to install non-Mode S transponders in aircraft until July 1, 1992,

Amendment No. 91–202, (52 FR 34102; September 9, 1987 and 52 FR 35234; September 18, 1987) amended current § 91.27 on civil aircraft certification requirements by adding a new paragraph (c) to require that a copy of the form which authorized the alteration of an aircraft with fuel tanks within the passenger or a baggage compartment be kept on board the modified aircraft. This new rule now appears as §91.203(c). Current § 91.173 on maintenance records was revised by requiring that such records be made available to the Administrator or an authorized representative of the National Transportation Safety Board and when such a fuel tank is installed as set forth in § 91.35 as amended pursuant to Part 43, a copy of the FAA Form 337 be kept on board the modified aircraft. This new rule appears as §91.417(b) and (c). This amendment took effect on December 8, 1987.

Amendment No. 91–203, (53 FR 23374; June 21, 1988, 53 FR 25050; July 1, 1988, and 53 FR 26592; July 14, 1988) amended or revised §91.24 (ATC transponder and altitude reporting equipment and use), 91.88 (Airport radar service areas), and 91.90 (Terminal control areas), and by adding a new Appendix D entitled "Airports/Locations Where the Transponder Requirements of § 91.24(b)(5)(ii) Apply," regarding use of transponders with automatic altitude reporting. This amendment took effect on July 21, 1988. Amendment No. 91–205 (53 FR 40323; October 14, 1988) revised §91.90 in its entirety effective January 12, 1989. Amendment No. 91–209 (54 FR 24883; June 9, 1989) amended §91.90 by delaying the effective date of the section for helicopter operations. These rules now appear in this revision as §§91.215, 91.130, 91.131, and new Appendix D to Part 91, respectively.

Amendment No. 91–204, (53 FR 26145; July 11, 1988) amended current § 91.35 on flight recorders and cockpit voice recorders to require digital flight recorders and voice recorders to be installed on selected aircraft operated in general aviation. The specifications for such recorders are set forth in a new Appendix E to Part 91 for airplanes and in a new Appendix F to Part 91 for helicopters. The amendment is reflected as § 91.609(b), (c), (d), and (e), and new Appendixes E and F to Part 91. This amendment becomes effective on October 11, 1991.

Amendment No. 91–205 (53 FR 40323; October 14, 1988) revised the classification and pilot and equipment requirements for conducting operations in terminal control areas (TCA's) by amending § 91.90 to establish a single-class TCA; require the pilot-in-command of a civil aircraft to hold at least a private pilot certificate, except for a student pilot who has received certain documented training; and, to eliminate the helicopter exception from the minimum equipment requirement. The amendment was effective on January 12, 1989. Subsequently, Amendment No. 91–209 (54 FR 24883; June 9, 1989) amended § 91.90(c)(1) by delaying the application of the section for helicopter operations for one year. Revised § 91.131 covers these amendments.

Amendment No. 91–206 (53 FR 50195; December 13, 1988) amended §91.30 to permit rotorcraft, nonturbine-powered airplanes, gliders, and lighter-than-air aircraft, for which an approved Master Minimum Equipment List has not been developed, to be operated with inoperative instruments and equipment not essential for the safe operation of the aircraft. The amendment also permits general. aviation operators of small rotorcraft, nonturbine-powered small airplanes, gliders, and lighter-than-air aircraft for which a Master Minimum Equipment List has been developed, the option of operating under the minimum equipment list concept, or under other conditions as set forth in the amendment. Amendment No. 91–206 also amended § 91.165 to require that any inoperative instrument or item of equipment permitted to be inoperative under the new amended §91.30 to be repaired, replaced, removed, or inspected at the next required inspection for the aircraft. These amendments became effective on December 13, 1988, and appear as §§ 91.213 and 91.405 of this revision to Part 91.

Amendment No. 91–207 (54 FR 265; January 4, 1989) amended §§91.11 and 91.61 to extend the controlled airspace and the applicability of certain air traffic rules to coincide with presidential action to extend the territorial sea of the United States for international purposes, from 3 to 12 nautical miles from the U.S. coast. This amendment became effective on December 27, 1988. These amended rules now appear as §§91.11 and 91.101.

Amendment No. 91–208 (54 FR 950; January 10, 1989) added a new §91.26 to require that any traffic alert and collision avoidance system installed in a U.S. registered civil aircraft must be approved by the Administrator, and if installed, must be on and operating during the aircraft's operation. The amendment became effective on February 9, 1989. The amendment appears herein as §§ 91.221.

Amendment No. 91–209 (54 FR 24883: June 9, 1989) delays the effective date of certain navigational equipment requirements of helicopter operations in a Terminal Control Area (TCA) by the amendment of § 91.90(c)(1). The amendment became effective on June 6, 1989. Section 91.131 covers this amendment.

Amendment No. 91–210 (54 FR 25682; June 16, 1989), effective June 16, 1989, amended § 91.24(a) to allow certain aircraft operators to install non-Mode S transponders in aircraft until July 1, 1992,

Cross Reference Table-Continued

Old Section	*New Section*
91.11	91.17
91.12	91.19
91.13	91.15
91.14	91.107
91.15	91.307
91.17	91.309
91.18	91.311
91.19	91.21
91.20	91.705
91.21	91.109
91.22	91.151
91.23	91.167
91.24	91.215
91.25	91.171
91.26	91.221
91.27	91.203
91.28	91.715
91.29	91.7
91.30	91.213
91.31	91.9
91.32	91.211
91.33	91.205
91.34	91.191
91.35	91.609
91.36	91.217
91.37	91.605
91.38	91.323
91.39	91.313
91.40	91.315
91.41	91.317
91.42	91.319
91.43	91.711
91.45	91.611
91.47	91.607
91.49	91.603
91.50	Deleted
91.51	91.219
91.52	91.207
91.53	Deleted
91.54	91.23
91.55	91.817
91.56	91.815
91.57	91.25
91.58	91.613
91.59	91.321
91.61	91.101
91.63	91.903
91.65	91.111 and 91.123
91.67	91.113
91.69	91.115
91.70	91.117
91.71	91.303
91.73	91.209
91.75	91.123
91.77	91.125
91.79	91.119
91.81	91.121
91.83	91.153 and 91.169
91.84	91.707
91.85	91.127
91.87	91.129
91.88	91.130
91.89	91.127
91.90	91.131
91.91	91.137
91.93	91.305

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PART 31—Airworthiness Standards: Manned Free Balloons

Subpart A-General

Source: Docket No. 1437 (29 FR 8258, July 1, 1964) as amended by Amdt. 31-1, Eff. 2/1/65, unless otherwise noted.

§ 31.1 Applicability.

(a) This part prescribes airworthiness standards for the issue of type certificates and changes to those certificates, for manned free balloons.

(b) Each person who applies under Part 21 for such a certificate or change must show compliance with the applicable requirements of this part.

(c) For purposes of this part-

(1) A captive gas balloon is a balloon that derives its lift from a captive lighter-than-air gas;

(2) A hot air balloon is a balloon that derives its lift from heated air;

(3) The envelope is the enclosure in which the lifting means is contained;

(4) The basket is the container, suspended beneath the envelope, for the balloon occupants;

(5) The trapeze is a harness or is a seat consisting of a horizontal bar or platform suspended beneath the envelope for the balloon occupants; and

(6) The design maximum weight is the maximum total weight of the balloon, less the lifting gas or air.

(Amdt. 31-3, Eff. 2/1/77)

PART 31—Airworthiness Standards: Manned Free Balloons

Subpart A-General

Source: Docket No. 1437 (29 FR 8258, July 1, 1964) as amended by Amdt. 31-1, Eff. 2/1/65, unless otherwise noted.

§ 31.1 Applicability.

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(b) Each person who applies under Part 21 for such a certificate or change must show compliance with the applicable requirements of this part.

(c) For purposes of this part-

(1) A captive gas balloon is a balloon that derives its lift from a captive lighter-than-air gas;

(2) A hot air balloon is a balloon that derives its lift from heated air;

(3) The envelope is the enclosure in which the lifting means is contained;

(4) The basket is the container, suspended beneath the envelope, for the balloon occupants;

(5) The trapeze is a harness or is a seat consisting of a horizontal bar or platform suspended beneath the envelope for the balloon occupants; and

(6) The design maximum weight is the maximum total weight of the balloon, less the lifting gas or air.

(Amdt. 31-3, Eff. 2/1/77)

PART 31—Airworthiness Standards: Manned Free Balloons

Subpart A-General

Source: Docket No. 1437 (29 FR 8258, July 1, 1964) as amended by Amdt. 31-1, Eff. 2/1/65, unless otherwise noted.

§ 31.1 Applicability.

(a) This part prescribes airworthiness standards for the issue of type certificates and changes to those certificates, for manned free balloons.

(b) Each person who applies under Part 21 for such a certificate or change must show compliance with the applicable requirements of this part.

(c) For purposes of this part-

(1) A captive gas balloon is a balloon that derives its lift from a captive lighter-than-air gas;

(2) A hot air balloon is a balloon that derives its lift from heated air;

(3) The envelope is the enclosure in which the lifting means is contained;

(4) The basket is the container, suspended beneath the envelope, for the balloon occupants;

(5) The trapeze is a harness or is a seat consisting of a horizontal bar or platform suspended beneath the envelope for the balloon occupants; and

(6) The design maximum weight is the maximum total weight of the balloon, less the lifting gas or air.

(Amdt. 31-3, Eff. 2/1/77)

PART 31—Airworthiness Standards: Manned Free Balloons

Subpart A-General

Source: Docket No. 1437 (29 FR 8258, July 1, 1964) as amended by Amdt. 31-1, Eff. 2/1/65, unless otherwise noted.

§ 31.1 Applicability.

(a) This part prescribes airworthiness standards for the issue of type certificates and changes to those certificates, for manned free balloons.

(b) Each person who applies under Part 21 for such a certificate or change must show compliance with the applicable requirements of this part.

(c) For purposes of this part-

(1) A captive gas balloon is a balloon that derives its lift from a captive lighter-than-air gas;

(2) A hot air balloon is a balloon that derives its lift from heated air;

(3) The envelope is the enclosure in which the lifting means is contained;

(4) The basket is the container, suspended beneath the envelope, for the balloon occupants;

(5) The trapeze is a harness or is a seat consisting of a horizontal bar or platform suspended beneath the envelope for the balloon occupants; and

(6) The design maximum weight is the maximum total weight of the balloon, less the lifting gas or air.

(Amdt. 31-3, Eff. 2/1/77)

Subpart C-Strength Requirements

§ 31.21 Loads.

Strength requirements are specified in terms of limit loads, that are the maximum load to be expected in service, and ultimate loads, that are limit loads multiplied by prescribed factors of safety. Unless otherwise specified, all prescribed loads are limit loads.

§ 31.23 Flight load factor.

In determining limit load, the limit flight load factor must be at least 1.4.

§ 31.25 Factor of safety.

(a) Except as specified in paragraphs (b) and (c) of this section, the factor of safety is 1.5.

(b) A factor of safety of at least five must be used in envelope design. A reduced factor of safety of at least two may be used if it is shown that the selected factor will preclude failure due to creep or instantaneous rupture from lack of rip stoppers. The selected factor must be applied to the more critical of the maximum operating pressure or envelope stress.

(c) A factor of safety of at least five must be used in the design of all fibrous or non-metallic parts of the rigging and related attachments of the envelope to basket, trapeze, or other means provided for carrying occupants. The primary attachments of the envelope to the basket, trapeze, or other means provided for carrying occupants must be designed so that failure is extremely remote or so that any single failure will not jeopardize safety of flight.

(d) In applying factors of safety, the effect of temperature, and other operating characteristics, or both, that may affect strength of the balloon must be accounted for.

(e) For design purposes, an occupant weight of at least 170 pounds must be assumed.

(Amdt. 31-2, Eff. 4/12/65)

§ 31.27 Strength.

(a) The structure must be able to support limit loads without detrimental effect.

(b) The structure must be substantiated by test to be able to withstand the ultimate loads for at least three seconds without failure. For the envelope, a test of a representative part is acceptable, if the part tested is large enough to include critical seams, joints, and load attachment points and members.

[(c) An ultimate free-fall drop test must be made of the basket, trapeze, or other place provided for occupants. The test must be made at design maximum weight on a horizontal surface, with the basket, trapeze, or other means provided for carrying occupants, striking the surface at angles of 0, 15, and 30 degrees. The weight may be distributed to simulate actual conditions. There must be no distortion or failure that is likely to cause serious injury to the occupants. A drop test height of 36 inches, or a drop test height that produces, upon impact, a velocity equal to the maximum vertical velocity determined in accordance with § 31.19, whichever is higher, must be used.]

[(Amdt. 31-4, Eff. 10/14/80)]

Subpart C-Strength Requirements

§ 31.21 Loads.

Strength requirements are specified in terms of limit loads, that are the maximum load to be expected in service, and ultimate loads, that are limit loads multiplied by prescribed factors of safety. Unless otherwise specified, all prescribed loads are limit loads.

§ 31.23 Flight load factor.

In determining limit load, the limit flight load factor must be at least 1.4.

§ 31.25 Factor of safety.

(a) Except as specified in paragraphs (b) and (c) of this section, the factor of safety is 1.5.

(b) A factor of safety of at least five must be used in envelope design. A reduced factor of safety of at least two may be used if it is shown that the selected factor will preclude failure due to creep or instantaneous rupture from lack of rip stoppers. The selected factor must be applied to the more critical of the maximum operating pressure or envelope stress.

(c) A factor of safety of at least five must be used in the design of all fibrous or non-metallic parts of the rigging and related attachments of the envelope to basket, trapeze, or other means provided for carrying occupants. The primary attachments of the envelope to the basket, trapeze, or other means provided for carrying occupants must be designed so that failure is extremely remote or so that any single failure will not jeopardize safety of flight.

(d) In applying factors of safety, the effect of temperature, and other operating characteristics, or both, that may affect strength of the balloon must be accounted for.

(e) For design purposes, an occupant weight of at least 170 pounds must be assumed.

(Amdt. 31-2, Eff. 4/12/65)

§ 31.27 Strength.

(a) The structure must be able to support limit loads without detrimental effect.

(b) The structure must be substantiated by test to be able to withstand the ultimate loads for at least three seconds without failure. For the envelope, a test of a representative part is acceptable, if the part tested is large enough to include critical seams, joints, and load attachment points and members.

[(c) An ultimate free-fall drop test must be made of the basket, trapeze, or other place provided for occupants. The test must be made at design maximum weight on a horizontal surface, with the basket, trapeze, or other means provided for carrying occupants, striking the surface at angles of 0, 15, and 30 degrees. The weight may be distributed to simulate actual conditions. There must be no distortion or failure that is likely to cause serious injury to the occupants. A drop test height of 36 inches, or a drop test height that produces, upon impact, a velocity equal to the maximum vertical velocity determined in accordance with § 31.19, whichever is higher, must be used.]

[(Amdt. 31-4, Eff. 10/14/80)]

Subpart C-Strength Requirements

§ 31.21 Loads.

Strength requirements are specified in terms of limit loads, that are the maximum load to be expected in service, and ultimate loads, that are limit loads multiplied by prescribed factors of safety. Unless otherwise specified, all prescribed loads are limit loads.

§ 31.23 Flight load factor.

In determining limit load, the limit flight load factor must be at least 1.4.

§ 31.25 Factor of safety.

(a) Except as specified in paragraphs (b) and (c) of this section, the factor of safety is 1.5.

(b) A factor of safety of at least five must be used in envelope design. A reduced factor of safety of at least two may be used if it is shown that the selected factor will preclude failure due to creep or instantaneous rupture from lack of rip stoppers. The selected factor must be applied to the more critical of the maximum operating pressure or envelope stress.

(c) A factor of safety of at least five must be used in the design of all fibrous or non-metallic parts of the rigging and related attachments of the envelope to basket, trapeze, or other means provided for carrying occupants. The primary attachments of the envelope to the basket, trapeze, or other means provided for carrying occupants must be designed so that failure is extremely remote or so that any single failure will not jeopardize safety of flight.

(d) In applying factors of safety, the effect of temperature, and other operating characteristics, or both, that may affect strength of the balloon must be accounted for.

(e) For design purposes, an occupant weight of at least 170 pounds must be assumed.

(Amdt. 31-2, Eff. 4/12/65)

§ 31.27 Strength.

(a) The structure must be able to support limit loads without detrimental effect.

(b) The structure must be substantiated by test to be able to withstand the ultimate loads for at least three seconds without failure. For the envelope, a test of a representative part is acceptable, if the part tested is large enough to include critical seams, joints, and load attachment points and members.

[(c) An ultimate free-fall drop test must be made of the basket, trapeze, or other place provided for occupants. The test must be made at design maximum weight on a horizontal surface, with the basket, trapeze, or other means provided for carrying occupants, striking the surface at angles of 0, 15, and 30 degrees. The weight may be distributed to simulate actual conditions. There must be no distortion or failure that is likely to cause serious injury to the occupants. A drop test height of 36 inches, or a drop test height that produces, upon impact, a velocity equal to the maximum vertical velocity determined in accordance with § 31.19, whichever is higher, must be used.]

[(Amdt. 31-4, Eff. 10/14/80)]

Subpart C-Strength Requirements

§ 31.21 Loads.

Strength requirements are specified in terms of limit loads, that are the maximum load to be expected in service, and ultimate loads, that are limit loads multiplied by prescribed factors of safety. Unless otherwise specified, all prescribed loads are limit loads.

§ 31.23 Flight load factor.

In determining limit load, the limit flight load factor must be at least 1.4.

§ 31.25 Factor of safety.

(a) Except as specified in paragraphs (b) and (c) of this section, the factor of safety is 1.5.

(b) A factor of safety of at least five must be used in envelope design. A reduced factor of safety of at least two may be used if it is shown that the selected factor will preclude failure due to creep or instantaneous rupture from lack of rip stoppers. The selected factor must be applied to the more critical of the maximum operating pressure or envelope stress.

(c) A factor of safety of at least five must be used in the design of all fibrous or non-metallic parts of the rigging and related attachments of the envelope to basket, trapeze, or other means provided for carrying occupants. The primary attachments of the envelope to the basket, trapeze, or other means provided for carrying occupants must be designed so that failure is extremely remote or so that any single failure will not jeopardize safety of flight.

(d) In applying factors of safety, the effect of temperature, and other operating characteristics, or both, that may affect strength of the balloon must be accounted for.

(e) For design purposes, an occupant weight of at least 170 pounds must be assumed.

(Amdt. 31-2, Eff. 4/12/65)

§ 31.27 Strength.

(a) The structure must be able to support limit loads without detrimental effect.

(b) The structure must be substantiated by test to be able to withstand the ultimate loads for at least three seconds without failure. For the envelope, a test of a representative part is acceptable, if the part tested is large enough to include critical seams, joints, and load attachment points and members.

[(c) An ultimate free-fall drop test must be made of the basket, trapeze, or other place provided for occupants. The test must be made at design maximum weight on a horizontal surface, with the basket, trapeze, or other means provided for carrying occupants, striking the surface at angles of 0, 15, and 30 degrees. The weight may be distributed to simulate actual conditions. There must be no distortion or failure that is likely to cause serious injury to the occupants. A drop test height of 36 inches, or a drop test height that produces, upon impact, a velocity equal to the maximum vertical velocity determined in accordance with § 31.19, whichever is higher, must be used.]

[(Amdt. 31-4, Eff. 10/14/80)]

that could cause injury to the occupants, must be padded.

§ 31.61 Static discharge.

Unless shown not to be necessary for safety, there must be appropriate bonding means in the design of each balloon using flammable gas as a lifting means to ensure that the effects of static discharges will not create a hazard.

(Amdt. 31–2, Eff. 4/12/65)

§ 31.63 Safety belts.

(a) There must be a safety belt, harness, or other restraining means for each occupant, unless the Administrator finds it unnecessary. If installed, the belt, harness, or other restraining means and its supporting structure must meet the strength requirements of Subpart C of this part.

(b) This section does not apply to balloons that incorporate a basket or gondola.

(Amdt. 31–2, Eff. 4/12/65); (Amdt. 31–3, Eff. 2/1/77)

[§ 31.65 Position lights.

(a) If position lights are installed, there must be one steady aviation white position light and one flashing aviation red (or flashing aviation white) position light with an effective flash frequency of at least 40, but not more than 100, cycles per minute.

(b) Each light must provide 360° horizontal coverage at the intensities prescribed in this paragraph. The following light intensities must be determined with the light source operating at a steady state and with all light covers and color filters in place and at the manufacturer's rated minimum voltage. For the flashing aviation red light, the measured values must be adjusted to correspond to a red filter temperature of at least 130° F:

(1) The intensities in the horizontal plane passing through the light unit must equal or exceed the following values:

Position light	Minimum intensity (candles)
Steady white	20
Flashing red or white	40

(2) The intensities in vertical planes must equal or exceed the following values. An intensity of one unit corresponds to the applicable horizontal plane intensity specified in paragraph (b)(l) of this section.

Angles above and below the horizontal in any vertical plane (degrees)	Minimum intensity (units)
0	1.00
0 to 5	0.90
5 to 10	0.80
10 to 15	0.70
15 to 20	0.50
20 to 30	0.30
30 to 40	0.10
40 to 60	0.05

(c) The steady white light must be located not more than 20 feet below the basket, trapeze, or other means for carrying occupants. The flashing red or white light must be located not less than 7, nor more than 10, feet below the steady white light.

(d) There must be a means to retract and store the lights.

(e) Each position light color must have the applicable International Commission on Illumination chromaticity coordinates as follows:

(1) *Aviation red*—

"y" is not greater than 0.335; and "z" is not greater than 0.002.

(2) *Aviation white*—

"x" is not less than 0.300 and not greater than 0.540;

"y" is not less than "x"−0.040" or "y"=0.010",', whichever is the smaller; and

"y" is not greater than "x+0.020" nor "0.636−0.0400 x";

Where "y0" is the "y" coordinate of the Planckian radiator for the value of "x" considered.]

(Amdt. 31–2, Eff. 4/12/65); [(Amdt. 31–4, Eff. 10/14/80)]

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